

FINAL REPORT

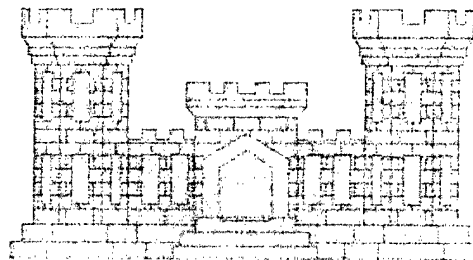
FORT GORDON ENERGY SURVEY & ANALYSIS OF BOILER AND CHILLER PLANTS

BUILDING 25910

BUILDING 25330

HEATING LOADS

FOR



PROP

ES

PROPOSED ENERGY CONSERVATION OPPORTUNITIES

FOR

SAVANNAH DISTRICT CORPS OF ENGINEERS

CONTRACT NUMBER: DACA21-93-C-0110

VOLUME III

OF 3

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HARRISON AND SPENCER, INC.
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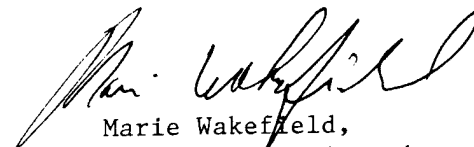


DEPARTMENT OF THE ARMY
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APPENDIX II
HEAT LOADS BUILDING 25330

TRANE TRACE HEAT LOAD ANALYSIS

INTRODUCTION:

The Trace 600 program was used to generate the heating requirements for each of the building types surveyed during the field study. The data produced from the program was based on several conditions that will be explained here.

INPUTING THE DATA:

The weather data for the simulation was based on standard weather tables in the Trace Program for the Augusta area. The design outside dry bulb temperature was 23°F, and internal loads such as people, lights, and miscellaneous equipment were not considered. Ventilation and infiltration were considered. Ventilation was defined as 15 cfm/person, infiltration for heating purposes was defined as 0.1 cfm/sf.

OUTPUT DATA:

The report produced heating requirements for the building hourly for five day type conditions. Design, Weekday, Saturday, Sunday, and Monday. The only one column from each building type was selected for the analysis and reporting process. This day type was usually the weekday column. The worst case condition was selected as a conservative approach to providing requirements that may tend toward the high side. Particular attention was paid to the values to assure that the data produced a smooth curve with few spikes and valleys. The information for all twelve months was transferred to Table 3C or 4C for further data reduction.

SUMMARY:

Appendix I contains the Trace output heat load data for Building 25910, North Central Utility Plant. Appendix II contains the Trace output data for the South Central Plant Building 25330. The data was used to accumulate the hourly load requirements on each of the two central utility plants.

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*****  
*****  
**                                     **  
**          TRACE    6 0 0    ANALYSIS          **  
**                                     **  
**          by          **  
**                                     **  
*****  
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 24412 (5 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 16:29:38 8/16/94
Dataset Name: FGTYPS31 .TM

System 1 Block FC - FAN COIL

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>					Mo/Hr: 8/16	*	Mo/Hr: 6/17					*	Mo/Hr: 13/ 1				
Outside Air ==>					OADB/WB/HR: 96/ 76/105.0	*	OADB: 98					*	OADB: 23				
						*						*					
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct					
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot					
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)					
Envelope Loads						*			*								
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00					
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00					
Roof Cond	37,504	0		37,504	9.96	*	40,023	13.71	*	-20,991	-20,991	4.79					
Glass Solar	103,029	0		103,029	27.35	*	114,852	39.34	*	0	0	0.00					
Glass Cond	33,924	0		33,924	9.01	*	38,447	13.17	*	-85,592	-85,592	19.51					
Wall Cond	59,280	0		59,280	15.74	*	66,149	22.66	*	-113,980	-113,980	25.99					
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00					
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00					
Infiltration	44,507			44,507	11.82	*	32,482	11.13	*	-78,754	-78,754	17.96					
Sub Total==>	278,244	0		278,244	73.87	*	291,953	100.00	*	-299,317	-299,317	68.24					
Internal Loads						*			*								
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00					
People	0			0	0.00	*	0	0.00	*	0	0	0.00					
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00					
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00					
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00					
Outside Air	0	0	0	98,398	26.13	*	0	0.00	*	0	-139,289	31.76					
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00					
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00					
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00					
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00					
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00					
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00					
Grand Total==>	278,244	0	0	376,642	100.00	*	291,953	100.00	*	-299,317	-438,606	100.00					

-----COOLING COIL SELECTION-----											-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	34,546	
Main Clg	31.4	376.6	328.6	34,546	76.7	67.9	89.2	67.4	64.8	88.5	Part	0	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	11,515	0 0
Totals	31.4	376.6									Wall	15,775	1,689 11

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--			--TEMPERATURES (F)---		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	8.1	Type	Clg	Htg		
(Mbh)	(cfm)	Deg F	Deg F	Vent	2,790	2,790	Clg Cfm/Sqft	1.00	SADB	67.4	75.8		
Main Htg	-438.6	34,546	64.4	75.8	Infil	1,262	1,577	Clg Cfm/Ton	1100.64	Plenum	75.0	68.0	
Aux Htg	0.0	0	0.0	0.0	Supply	34,546	34,546	Clg Sqft/Ton	1100.64	Return	75.0	68.0	
Preheat	-115.6	34,546	64.4	67.4	Mincfm	0	0	Clg Btuh/Sqft	10.90	Ret/OA	76.7	64.4	
Reheat	0.0	0	0.0	0.0	Return	34,546	34,546	No. People	186	Runarnd	75.0	68.0	
Humidif	0.0	0	0.0	0.0	Exhaust	2,790	2,790	Htg % OA	8.1	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0	
Total	-438.6				Auxil	0	0	Htg Btuh/Sqft	-12.70	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-354,572	0.0	-262,715	0.0	-262,717	0.0	-262,717	0.0	-262,717	0.0
2	32.9	30.7	-329,194	0.0	-267,137	0.0	-267,137	0.0	-267,137	0.0	-267,137	0.0
3	33.1	31.3	-309,885	0.0	-266,870	0.0	-266,870	0.0	-266,870	0.0	-266,870	0.0
4	33.9	32.1	-294,913	0.0	-264,340	0.0	-264,340	0.0	-264,340	0.0	-264,340	0.0
5	35.2	33.5	-282,748	0.0	-259,974	0.0	-259,974	0.0	-259,974	0.0	-259,974	0.0
6	37.0	35.4	-271,217	0.0	-254,369	0.0	-254,369	0.0	-254,369	0.0	-254,369	0.0
7	39.0	37.6	-260,116	0.0	-247,177	0.0	-247,177	0.0	-247,177	0.0	-247,177	0.0
8	41.3	40.1	-247,473	0.0	-234,514	0.0	-234,514	0.0	-234,514	0.0	-234,514	0.0
9	43.7	42.5	-230,480	0.0	-209,547	0.0	-209,547	0.0	-209,547	0.0	-209,547	0.0
10	46.1	44.0	-166,711	0.0	-193,596	0.0	-193,596	0.0	-193,596	0.0	-193,596	0.0
11	48.4	45.0	-94,297	0.0	-172,201	0.0	-172,201	0.0	-172,201	0.0	-172,201	0.0
12	50.5	45.6	-70,022	0.0	-165,244	0.0	-165,244	0.0	-165,244	0.0	-165,244	0.0
13	52.2	46.1	-55,133	0.0	-154,643	0.0	-154,643	0.0	-154,643	0.0	-154,643	0.0
14	53.5	46.4	-40,960	0.0	-145,327	0.0	-145,327	0.0	-145,327	0.0	-145,327	0.0
15	54.3	46.3	-19,306	0.0	-132,116	0.0	-132,116	0.0	-132,116	0.0	-132,116	0.0
16	54.6	46.1	-7,802	0.0	-123,252	0.0	-123,252	0.0	-123,252	0.0	-123,252	0.0
17	54.0	45.9	-13,699	0.0	-123,702	0.0	-123,702	0.0	-123,702	0.0	-123,702	0.0
18	52.5	45.0	-50,013	0.0	-137,593	0.0	-137,593	0.0	-137,593	0.0	-137,593	0.0
19	50.1	44.8	-83,152	0.0	-154,602	0.0	-154,602	0.0	-154,602	0.0	-154,602	0.0
20	47.1	43.3	-115,251	0.0	-177,726	0.0	-177,726	0.0	-177,726	0.0	-177,726	0.0
21	43.7	40.4	-137,214	0.0	-195,254	0.0	-195,254	0.0	-195,254	0.0	-195,254	0.0
22	40.4	37.3	-159,977	0.0	-218,077	0.0	-218,077	0.0	-218,077	0.0	-218,077	0.0
23	37.3	34.9	-173,984	0.0	-235,516	0.0	-235,516	0.0	-235,516	0.0	-235,516	0.0
24	34.9	32.6	-185,214	0.0	-252,994	0.0	-252,994	0.0	-252,994	0.0	-252,994	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-180,003	0.0	-213,109	0.0	-213,109	0.0	-213,109	0.0	-213,109	0.0
2	39.7	37.1	-189,084	0.0	-226,788	0.0	-226,788	0.0	-226,788	0.0	-226,788	0.0
3	37.8	35.1	-200,874	0.0	-240,877	0.0	-240,877	0.0	-240,877	0.0	-240,877	0.0
4	36.3	33.8	-206,452	0.0	-246,543	0.0	-246,543	0.0	-246,543	0.0	-246,543	0.0
5	35.1	32.6	-214,442	0.0	-260,095	0.0	-260,095	0.0	-260,095	0.0	-260,095	0.0
6	34.4	32.0	-214,445	0.0	-261,775	0.0	-261,775	0.0	-261,775	0.0	-261,775	0.0
7	34.1	31.9	-210,806	0.0	-263,446	0.0	-263,446	0.0	-263,446	0.0	-263,446	0.0
8	34.6	32.4	-195,261	0.0	-260,547	0.0	-260,547	0.0	-260,547	0.0	-260,547	0.0
9	36.0	33.8	-146,138	0.0	-235,337	0.0	-235,337	0.0	-235,337	0.0	-235,337	0.0
10	38.2	34.7	-107,835	0.0	-219,094	0.0	-219,094	0.0	-219,094	0.0	-219,094	0.0
11	40.9	36.2	-73,007	0.0	-205,186	0.0	-205,186	0.0	-205,186	0.0	-205,186	0.0
12	43.9	37.4	-51,097	0.0	-191,499	0.0	-191,499	0.0	-191,499	0.0	-191,499	0.0
13	46.9	39.4	-38,717	0.0	-178,000	0.0	-178,000	0.0	-178,000	0.0	-178,000	0.0
14	49.7	41.4	-26,851	0.0	-160,002	0.0	-160,002	0.0	-160,002	0.0	-160,002	0.0
15	51.8	42.8	-4,387	0.0	-138,605	0.0	-138,605	0.0	-138,605	0.0	-138,605	0.0
16	53.2	43.9	0	0.0	-124,407	0.0	-124,407	0.0	-124,407	0.0	-124,407	0.0
17	53.7	44.2	0	0.0	-117,073	0.0	-117,073	0.0	-117,073	0.0	-117,073	0.0
18	53.4	44.4	0	0.0	-117,948	0.0	-117,948	0.0	-117,948	0.0	-117,948	0.0
19	52.7	44.4	-46,627	0.0	-136,670	0.0	-136,670	0.0	-136,670	0.0	-136,670	0.0
20	51.5	45.2	-92,152	0.0	-150,651	0.0	-150,651	0.0	-150,651	0.0	-150,651	0.0
21	50.0	44.6	-117,460	0.0	-162,764	0.0	-162,764	0.0	-162,764	0.0	-162,764	0.0
22	48.1	43.3	-137,865	0.0	-175,712	0.0	-175,712	0.0	-175,712	0.0	-175,712	0.0
23	46.1	41.8	-157,991	0.0	-186,441	0.0	-186,441	0.0	-186,441	0.0	-186,441	0.0
24	43.9	40.1	-169,715	0.0	-201,469	0.0	-201,469	0.0	-201,469	0.0	-201,469	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-69,901	0.0	0	0.0	-119,887	0.0	-119,887	0.0	-119,887	0.0
2	48.7	44.6	-81,004	0.0	0	0.0	-137,248	0.0	-137,248	0.0	-137,248	0.0
3	46.6	42.9	-93,757	0.0	0	0.0	-150,474	0.0	-150,474	0.0	-150,474	0.0
4	44.9	41.4	-101,161	0.0	-157,826	0.0	-159,245	0.0	-159,245	0.0	-159,245	0.0
5	43.9	40.8	-109,470	0.0	-168,801	0.0	-168,801	0.0	-168,801	0.0	-168,801	0.0
6	43.5	40.8	-109,251	0.0	-172,486	0.0	-172,486	0.0	-172,486	0.0	-172,486	0.0
7	44.0	41.4	-105,323	0.0	-170,034	0.0	-170,034	0.0	-170,034	0.0	-170,034	0.0
8	45.4	42.7	-65,564	0.0	-148,585	0.0	-148,585	0.0	-148,585	0.0	-148,585	0.0
9	47.7	44.3	-16,083	0.0	-124,920	0.0	-124,920	0.0	-124,920	0.0	-124,920	0.0
10	50.6	45.8	0	0.0	-101,786	0.0	-101,786	0.0	-101,786	0.0	-101,786	0.0
11	53.9	47.4	0	0.0	-72,008	0.0	-72,008	0.0	-72,008	0.0	-72,008	0.0
12	57.4	49.0	0	0.0	-52,363	0.0	-52,363	0.0	-52,363	0.0	-52,363	0.0
13	60.7	50.8	0	0.0	-39,471	0.0	-39,471	0.0	-39,471	0.0	-39,471	0.0
14	63.6	52.7	0	0.0	-17,709	0.0	-17,709	0.0	-17,709	0.0	-17,709	0.0
15	65.9	53.7	0	0.0	-5,443	0.0	-5,443	0.0	-5,443	0.0	-5,443	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	11.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	-19,036	0.0	-31,591	0.0	-31,591	0.0	-31,591	0.0	-31,591	0.0
22	60.0	54.1	0	0.0	-65,654	0.0	-65,654	0.0	-65,654	0.0	-65,654	0.0
23	57.1	51.9	0	0.0	-84,840	0.0	-84,840	0.0	-84,840	0.0	-84,840	0.0
24	54.2	49.4	0	0.0	-106,001	0.0	-106,001	0.0	-106,001	0.0	-106,001	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	-3,440	0.0	-33,331	0.0	-33,331	0.0	-33,331	0.0
9	55.9	52.1	0	0.0	-47,873	0.0	-47,873	0.0	-47,873	0.0	-47,873	0.0
10	58.9	53.2	0	0.0	-9,724	0.0	-9,724	0.0	-9,724	0.0	-9,724	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	15.6	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	17.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	18.2	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	18.4	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	17.3	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	13.3	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	9.6	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	6.4	0	1.2	0	1.2	0	1.2	0	1.2
22	68.0	62.5	0	4.3	-7,863	0.0	-7,863	0.0	-7,863	0.0	-7,863	0.0
23	65.7	60.5	0	2.6	-24,393	0.0	-24,393	0.0	-24,393	0.0	-24,393	0.0
24	63.4	58.5	0	0.9	-2,570	0.0	-2,570	0.0	-2,570	0.0	-2,570	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

May			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	68.2	63.5			0	2.7		0		0.0		0		0.0		0		0.0		0		0.0
2	65.7	61.5			0	4.7		-11,054		0.0		-11,054		0.0		-11,054		0.0		-11,054		0.0
3	63.6	59.7			0	3.8		-27,368		0.0		-27,368		0.0		-27,368		0.0		-27,368		0.0
4	61.8	58.4			0	2.8		-40,702		0.0		-40,702		0.0		-40,702		0.0		-40,702		0.0
5	60.5	57.1			0	2.5		-3,756		0.0		-3,756		0.0		-3,756		0.0		-3,756		0.0
6	59.7	56.5			0	2.4		0		0.0		0		0.0		0		0.0		0		0.0
7	59.4	56.5			0	4.8		0		0.0		0		0.0		0		0.0		0		0.0
8	60.1	56.3			0	8.2		0		0.0		0		0.0		0		0.0		0		0.0
9	62.4	56.3			0	11.5		0		0.0		0		0.0		0		0.0		0		0.0
10	65.7	57.2			0	14.8		0		0.0		0		0.0		0		0.0		0		0.0
11	69.9	58.9			0	17.5		0		0.0		0		0.0		0		0.0		0		0.0
12	74.3	60.9			0	19.3		0		0.0		0		0.0		0		0.0		0		0.0
13	78.5	63.7			0	20.6		0		8.7		0		8.7		0		8.7		0		8.7
14	81.9	65.3			0	22.3		0		11.1		0		11.1		0		11.1		0		11.1
15	84.1	66.9			0	24.2		0		13.5		0		13.5		0		13.5		0		13.5
16	84.9	67.1			0	25.1		0		14.1		0		14.1		0		14.1		0		14.1
17	84.6	67.3			0	25.3		0		14.4		0		14.4		0		14.4		0		14.4
18	83.8	67.1			0	23.8		0		13.9		0		13.9		0		13.9		0		13.9
19	82.4	67.5			0	20.9		0		12.0		0		12.0		0		12.0		0		12.0
20	80.6	68.9			0	16.4		0		9.4		0		9.4		0		9.4		0		9.4
21	78.5	71.0			0	13.1		0		7.4		0		7.4		0		7.4		0		7.4
22	76.1	69.9			0	10.7		0		5.4		0		5.4		0		5.4		0		5.4
23	73.4	68.0			0	8.5		0		3.8		0		3.8		0		3.8		0		3.8
24	70.8	65.5			0	7.2		0		2.0		0		2.0		0		2.0		0		2.0

June	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton		
1	74.7	70.1		0		12.7		0		5.8		0		7.6		0		7.6		
2	72.6	68.4		0		11.4		0		4.5		0		5.2		0		5.2		
3	70.9	67.3		0		10.6		0		3.3		0		3.5		0		3.5		
4	69.6	66.5		0		9.6		0		2.5		0		2.6		0		2.6		
5	68.7	65.8		0		9.2		0		1.6		0		1.6		0		1.6		
6	68.5	65.7		0		9.1		0		1.3		0		1.4		0		1.4		
7	69.0	66.3		0		11.5		0		2.6		0		2.6		0		2.6		
8	70.6	66.9		0		15.0		0		4.5		0		4.5		0		4.5		
9	73.0	67.7		0		19.1		0		6.6		0		6.6		0		6.6		
10	76.1	68.1		0		22.7		0		10.1		0		10.1		0		10.1		
11	79.5	69.1		0		25.3		0		12.3		0		12.3		0		12.3		
12	82.9	70.1		0		26.9		0		14.2		0		14.2		0		14.2		
13	86.0	71.0		0		28.1		0		15.7		0		15.7		0		15.7		
14	88.4	72.5		0		29.4		0		18.6		0		18.6		0		18.6		
15	90.0	74.0		0		31.4		0		22.2		0		22.2		0		22.2		
16	90.5	73.7		0		31.4		0		22.1		0		22.1		0		22.1		
17	90.3	74.2		0		31.4		0		23.0		0		23.0		0		23.0		
18	89.4	73.9		0		31.4		0		22.5		0		22.5		0		22.5		
19	88.1	74.5		0		31.0		0		20.2		0		20.2		0		20.2		
20	86.4	75.3		0		23.8		0		17.3		0		17.3		0		17.3		
21	84.3	76.5		0		19.4		0		16.6		0		16.6		0		16.6		
22	81.9	75.7		0		17.1		0		14.8		0		14.8		0		14.8		
23	79.5	74.0		0		15.2		0		12.8		0		12.8		0		12.8		
24	77.0	72.1		0		14.0		0		9.8		0		9.8		0		9.8		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	15.2	0	4.5	0	6.1	0	6.1	0	6.1
2	72.4	69.4	0	12.4	0	4.0	0	4.4	0	4.4	0	4.4
3	71.3	68.4	0	11.2	0	3.3	0	3.4	0	3.4	0	3.4
4	70.5	67.7	0	10.5	0	2.2	0	2.2	0	2.2	0	2.2
5	70.0	67.4	0	9.5	0	1.7	0	1.8	0	1.8	0	1.8
6	69.9	67.5	0	9.4	0	1.5	0	1.5	0	1.5	0	1.5
7	70.3	68.0	0	11.8	0	2.7	0	2.7	0	2.7	0	2.7
8	71.7	69.0	0	15.9	0	5.2	0	5.2	0	5.2	0	5.2
9	73.7	69.5	0	19.5	0	8.0	0	8.0	0	8.0	0	8.0
10	76.2	70.6	0	22.7	0	11.5	0	11.5	0	11.5	0	11.5
11	78.9	71.8	0	24.5	0	13.8	0	13.8	0	13.8	0	13.8
12	81.4	73.0	0	26.5	0	16.0	0	16.0	0	16.0	0	16.0
13	83.4	74.4	0	27.2	0	17.1	0	17.1	0	17.1	0	17.1
14	84.8	74.8	0	28.9	0	18.8	0	18.8	0	18.8	0	18.8
15	85.2	75.0	0	30.5	0	20.3	0	20.3	0	20.3	0	20.3
16	85.1	75.0	0	31.4	0	20.4	0	20.4	0	20.4	0	20.4
17	84.6	74.7	0	31.4	0	20.4	0	20.4	0	20.4	0	20.4
18	83.8	74.6	0	31.4	0	20.0	0	20.0	0	20.0	0	20.0
19	82.7	74.6	0	29.3	0	18.2	0	18.2	0	18.2	0	18.2
20	81.4	74.4	0	22.1	0	15.7	0	15.7	0	15.7	0	15.7
21	79.9	74.9	0	19.6	0	14.0	0	14.0	0	14.0	0	14.0
22	78.4	74.0	0	17.4	0	12.1	0	12.1	0	12.1	0	12.1
23	76.8	72.7	0	15.8	0	9.3	0	9.3	0	9.3	0	9.3
24	75.2	71.6	0	14.5	0	7.7	0	7.7	0	7.7	0	7.7

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	15.0	0	6.1	0	8.0	0	8.0	0	8.0
2	73.2	70.3	0	12.0	0	5.1	0	5.6	0	5.6	0	5.6
3	71.7	68.9	0	10.2	0	3.8	0	4.0	0	4.0	0	4.0
4	70.4	67.8	0	9.4	0	2.8	0	2.9	0	2.9	0	2.9
5	69.5	66.8	0	8.5	0	1.7	0	1.7	0	1.7	0	1.7
6	68.9	66.4	0	8.5	0	1.2	0	1.2	0	1.2	0	1.2
7	68.7	66.4	0	9.6	0	1.5	0	1.5	0	1.5	0	1.5
8	69.2	66.8	0	13.6	0	3.0	0	3.0	0	3.0	0	3.0
9	70.8	67.7	0	18.5	0	5.6	0	5.6	0	5.6	0	5.6
10	73.2	67.7	0	21.7	0	8.1	0	8.1	0	8.1	0	8.1
11	76.2	68.8	0	24.3	0	10.1	0	10.1	0	10.1	0	10.1
12	79.3	70.3	0	25.7	0	12.1	0	12.1	0	12.1	0	12.1
13	82.3	72.2	0	26.7	0	14.4	0	14.4	0	14.4	0	14.4
14	84.7	73.7	0	29.2	0	16.9	0	16.9	0	16.9	0	16.9
15	86.3	74.6	0	30.9	0	20.1	0	20.1	0	20.1	0	20.1
16	86.8	75.1	0	31.4	0	21.1	0	21.1	0	21.1	0	21.1
17	86.6	75.1	0	31.4	0	21.2	0	21.2	0	21.2	0	21.2
18	86.0	75.3	0	31.4	0	21.7	0	21.7	0	21.7	0	21.7
19	85.1	76.0	0	27.1	0	19.3	0	19.3	0	19.3	0	19.3
20	83.8	76.8	0	21.4	0	17.1	0	17.1	0	17.1	0	17.1
21	82.3	77.2	0	19.4	0	16.0	0	16.0	0	16.0	0	16.0
22	80.6	76.3	0	16.7	0	14.8	0	14.8	0	14.8	0	14.8
23	78.7	75.3	0	14.8	0	12.0	0	12.0	0	12.0	0	12.0
24	76.8	73.7	0	13.5	0	9.9	0	9.9	0	9.9	0	9.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	7.9	0	0.4	0	0.9	0	0.9	0	0.9
2	67.6	65.0	0	5.4	-6,789	0.0	-6,789	0.0	-6,789	0.0	-6,789	0.0
3	65.8	63.4	0	4.6	-22,039	0.0	-22,039	0.0	-22,039	0.0	-22,039	0.0
4	64.3	62.2	0	4.0	-29,501	0.0	-29,501	0.0	-29,501	0.0	-29,501	0.0
5	63.1	61.1	0	3.4	-2,750	0.0	-2,750	0.0	-2,750	0.0	-2,750	0.0
6	62.4	60.3	0	3.3	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.0	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	10.8	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	13.7	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	16.3	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	17.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	19.0	0	7.3	0	7.3	0	7.3	0	7.3
14	81.2	68.4	0	20.5	0	10.0	0	10.0	0	10.0	0	10.0
15	83.0	70.0	0	22.8	0	11.5	0	11.5	0	11.5	0	11.5
16	83.7	70.5	0	24.1	0	12.7	0	12.8	0	12.8	0	12.8
17	83.4	70.5	0	23.9	0	13.1	0	13.1	0	13.1	0	13.1
18	82.8	70.9	0	21.8	0	12.5	0	12.5	0	12.5	0	12.5
19	81.6	72.7	0	17.5	0	10.7	0	10.7	0	10.7	0	10.7
20	80.1	74.7	0	14.5	0	9.9	0	9.9	0	9.9	0	9.9
21	78.3	74.1	0	11.9	0	8.9	0	8.9	0	8.9	0	8.9
22	76.3	72.4	0	10.1	0	7.0	0	7.0	0	7.0	0	7.0
23	74.1	70.7	0	8.3	0	5.0	0	5.0	0	5.0	0	5.0
24	71.8	68.9	0	7.2	0	2.7	0	2.7	0	2.7	0	2.7

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-103,162	0.0	-103,162	0.0	-103,162	0.0
2	50.1	48.6	0	0.0	0	0.0	-118,067	0.0	-118,067	0.0	-118,067	0.0
3	48.4	46.9	0	0.0	0	0.0	-125,940	0.0	-125,940	0.0	-125,940	0.0
4	47.1	45.8	0	0.0	-53,221	0.0	-137,897	0.0	-137,897	0.0	-137,897	0.0
5	46.3	44.8	0	0.0	-143,287	0.0	-143,287	0.0	-143,287	0.0	-143,287	0.0
6	46.0	44.5	0	0.0	-152,900	0.0	-152,900	0.0	-152,900	0.0	-152,900	0.0
7	46.8	45.3	-27,550	0.0	-149,274	0.0	-149,274	0.0	-149,274	0.0	-149,274	0.0
8	48.9	47.5	-49,644	0.0	-128,140	0.0	-128,140	0.0	-128,140	0.0	-128,140	0.0
9	52.2	49.9	0	0.0	-96,906	0.0	-96,906	0.0	-96,906	0.0	-96,906	0.0
10	56.2	52.5	0	0.0	-67,987	0.0	-67,987	0.0	-67,987	0.0	-67,987	0.0
11	60.4	54.4	0	0.0	-43,866	0.0	-43,866	0.0	-43,866	0.0	-43,866	0.0
12	64.4	56.0	0	0.0	-18,622	0.0	-18,622	0.0	-18,622	0.0	-18,622	0.0
13	67.7	57.3	0	0.0	-6,083	0.0	-6,083	0.0	-6,083	0.0	-6,083	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	-17,344	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-28,704	0.0	-28,704	0.0	-28,704	0.0	-28,704	0.0
23	57.0	55.1	0	0.0	-75,356	0.0	-75,356	0.0	-75,356	0.0	-75,356	0.0
24	54.5	52.7	0	0.0	-87,288	0.0	-87,288	0.0	-87,288	0.0	-87,288	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-90,968	0.0	0	0.0	-115,619	0.0	-115,619	0.0	-115,619	0.0
2	49.4 47.3	-100,415	0.0	0	0.0	-131,830	0.0	-131,830	0.0	-131,830	0.0
3	47.2 45.3	-112,770	0.0	-119,403	0.0	-146,353	0.0	-146,353	0.0	-146,353	0.0
4	45.3 43.4	-119,061	0.0	-159,974	0.0	-159,974	0.0	-159,974	0.0	-159,974	0.0
5	43.9 42.2	-126,474	0.0	-165,866	0.0	-165,866	0.0	-165,866	0.0	-165,866	0.0
6	43.0 41.4	-125,490	0.0	-175,054	0.0	-175,054	0.0	-175,054	0.0	-175,054	0.0
7	42.7 41.2	-120,002	0.0	-177,502	0.0	-177,502	0.0	-177,502	0.0	-177,502	0.0
8	43.5 42.0	-101,192	0.0	-171,798	0.0	-171,798	0.0	-171,798	0.0	-171,798	0.0
9	45.9 44.0	-52,436	0.0	-147,492	0.0	-147,492	0.0	-147,492	0.0	-147,492	0.0
10	49.4 46.6	-8,920	0.0	-120,450	0.0	-120,450	0.0	-120,450	0.0	-120,450	0.0
11	53.8 48.6	0	0.0	-100,920	0.0	-100,920	0.0	-100,920	0.0	-100,920	0.0
12	58.4 50.6	0	0.0	-79,603	0.0	-79,603	0.0	-79,603	0.0	-79,603	0.0
13	62.8 52.6	0	0.0	-55,260	0.0	-55,260	0.0	-55,260	0.0	-55,260	0.0
14	66.3 54.5	0	0.0	-29,921	0.0	-29,921	0.0	-29,921	0.0	-29,921	0.0
15	68.7 55.7	0	0.0	-6,290	0.0	-6,290	0.0	-6,290	0.0	-6,290	0.0
16	69.5 56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	0.0	-8,940	0.0	-8,940	0.0	-8,940	0.0	-8,940	0.0
19	66.9 59.4	0	0.0	-30,453	0.0	-30,453	0.0	-30,453	0.0	-30,453	0.0
20	65.0 59.4	0	0.0	-44,369	0.0	-44,369	0.0	-44,369	0.0	-44,369	0.0
21	62.8 58.2	0	0.0	-57,731	0.0	-57,731	0.0	-57,731	0.0	-57,731	0.0
22	60.2 56.1	0	0.0	-75,623	0.0	-75,623	0.0	-75,623	0.0	-75,623	0.0
23	57.5 54.0	0	0.0	-86,975	0.0	-86,975	0.0	-86,975	0.0	-86,975	0.0
24	54.7 51.7	0	0.0	-104,374	0.0	-104,374	0.0	-104,374	0.0	-104,374	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-138,520	0.0	-179,189	0.0	-179,189	0.0	-179,189	0.0	-179,189	0.0
2	43.2 41.1	-146,311	0.0	-192,859	0.0	-192,859	0.0	-192,859	0.0	-192,859	0.0
3	41.8 39.8	-157,049	0.0	-202,674	0.0	-202,674	0.0	-202,674	0.0	-202,674	0.0
4	40.7 38.7	-161,769	0.0	-207,575	0.0	-207,575	0.0	-207,575	0.0	-207,575	0.0
5	40.1 38.4	-164,790	0.0	-210,425	0.0	-210,425	0.0	-210,425	0.0	-210,425	0.0
6	39.9 38.4	-163,734	0.0	-216,849	0.0	-216,849	0.0	-216,849	0.0	-216,849	0.0
7	40.5 39.0	-160,091	0.0	-217,364	0.0	-217,364	0.0	-217,364	0.0	-217,364	0.0
8	42.2 40.7	-151,525	0.0	-211,363	0.0	-211,363	0.0	-211,363	0.0	-211,363	0.0
9	44.9 43.4	-114,416	0.0	-183,275	0.0	-183,275	0.0	-183,275	0.0	-183,275	0.0
10	48.2 45.8	-74,793	0.0	-160,867	0.0	-160,867	0.0	-160,867	0.0	-160,867	0.0
11	51.7 48.3	-41,907	0.0	-137,183	0.0	-137,183	0.0	-137,183	0.0	-137,183	0.0
12	55.0 50.7	-20,490	0.0	-118,018	0.0	-118,018	0.0	-118,018	0.0	-118,018	0.0
13	57.7 52.0	-10,069	0.0	-104,369	0.0	-104,369	0.0	-104,369	0.0	-104,369	0.0
14	59.5 52.6	0	0.0	-92,657	0.0	-92,657	0.0	-92,657	0.0	-92,657	0.0
15	60.1 52.7	0	0.0	-79,398	0.0	-79,398	0.0	-79,398	0.0	-79,398	0.0
16	59.9 52.6	0	0.0	-70,607	0.0	-70,607	0.0	-70,607	0.0	-70,607	0.0
17	59.2 52.1	0	0.0	-75,440	0.0	-75,440	0.0	-75,440	0.0	-75,440	0.0
18	58.2 51.8	0	0.0	-91,067	0.0	-91,067	0.0	-91,067	0.0	-91,067	0.0
19	56.8 52.2	0	0.0	-104,520	0.0	-104,520	0.0	-104,520	0.0	-104,520	0.0
20	55.0 51.4	-19,933	0.0	-117,613	0.0	-117,613	0.0	-117,613	0.0	-117,613	0.0
21	53.1 50.1	-82,842	0.0	-128,049	0.0	-128,049	0.0	-128,049	0.0	-128,049	0.0
22	51.0 48.1	-103,343	0.0	-144,134	0.0	-144,134	0.0	-144,134	0.0	-144,134	0.0
23	48.9 46.2	-116,229	0.0	-155,772	0.0	-155,772	0.0	-155,772	0.0	-155,772	0.0
24	46.9 44.1	-126,000	0.0	-169,227	0.0	-169,227	0.0	-169,227	0.0	-169,227	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 24412 (5 BUILDINGS)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA						90		

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	ENLISTED BARRACKS

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	ALL THREE FLOORS	11515.2		2	0		10	3		

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				5			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	226	9.5		7	0			
1	2	50.75	9.5		7	90			
1	3	226	9.5		7	180			
1	4	50.75	9.5		7	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	28.5	10	1	1.03	.82					
1	3	27.8	10	1	1.03	.82					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	62	PEOPLE	255	325	1	WATT-SF	ASHRAE2				

-----CARD 28--- Miscellaneous Equipment

CHBD 10		Miscellaneous Equipment									
Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	REFRIG	6.5	KW	FGHEAT						
1	2	DRYER	17	KW	FGHEAT						
1	3	WASHER	.3	KW	FGHEAT						
1	4	MISS	1	KW	FGHEAT						

-----CARD 29--- Room Airflows

Room Number	Ventilation				Infiltration				Reheat Minimum	
	Cooling		Heating		Cooling		Heating		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows

-----Main-----					-----Auxiliary-----					
Room Number	---Cooling---		---Heating---		---Cooling---		---Heating---		--Room Exhaust--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	FAN COILS SYSTEM

-----CARD 40--- System Type

-----OPTIONAL VENTILATION SYSTEM-----							
System	Ventil						Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Pressure
1	FC						

-----CARD 41-- Zone Assignment

[illegible]

-----CARD 42--- Fan SP and Duct Parameters-----

[illegible]

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

FC (Utility file not found)

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

0 75
24

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

**
** TRACE 600 ANALYSIS **
**
** by **
**

ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 24404 (2 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Reflectance: 0.20
Winter Ground Reflectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:16:32 8/25/94
Dataset Name: FGTPSA31 .TM

System 1 Block FC - FAN COIL

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)	Mo/Hr: 8/16		*	Mo/Hr: 6/17		*	Mo/Hr: 13/ 1					
Outside Air ==)	OADB/WB/HR: 96/ 76/105.0		*	OADB: 98		*	OADB: 23					
			*			*						
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	45,932	0		45,932	10.67	*	49,017	14.50	*	-25,708	-25,708	5.06
Glass Solar	114,741	0		114,741	26.66	*	127,908	37.84	*	0	0	0.00
Glass Cond	37,780	0		37,780	8.78	*	42,817	12.67	*	-95,322	-95,322	18.76
Wall Cond	71,489	0		71,489	16.61	*	79,703	23.58	*	-136,286	-136,286	26.83
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	51,681			51,681	12.01	*	38,553	11.41	*	-93,475	-93,475	18.40
Sub Total==)	321,623	0		321,623	74.74	*	337,998	100.00	*	-350,791	-350,791	69.05
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	108,684	25.26	*	0	0.00	*	0	-157,262	30.95
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==)	321,623	0	0	430,307	100.00	*	337,998	100.00	*	-350,791	-508,052	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F Deg F Grains	Leaving DB/WB/HR Deg F Deg F Grains	Gross Total Floor	Glass (sf) (%)
Main Clg	35.9	430.3	378.7	42,309 76.6 68.1 90.1	67.8 65.1 89.6	42,309	
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0	0	
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0	0	
Totals	35.9	430.3				14,103	0 0
						18,723	1,881 10

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	7.4	Type	Clg	Htg
Main Htg	-508.1	42,309	64.6	75.5	Vent	3,150	3,150	Clg Cfm/Sqft	1.00	SADB	67.8	75.5
Aux Htg	0.0	0	0.0	0.0	Infil	1,498	1,872	Clg Cfm/Ton	1179.87	Plenum	75.0	68.0
Preheat	-147.8	42,309	64.6	67.8	Supply	42,309	42,309	Clg Sqft/Ton	1179.87	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	10.17	Ret/OA	76.6	64.6
Humidif	0.0	0	0.0	0.0	Return	42,309	42,309	No. People	210	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	3,150	3,150	Htg % OA	7.4	Fn MtrTD	0.0	0.0
Total	-508.1				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-12.01	Fn Frict	0.0	0.0

-----AIRFLOWS (cfm)-----

-----ENGINEERING CHECKS-----

-----TEMPERATURES (F)-----

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-412,455	0.0	-298,341	0.0	-298,341	0.0	-298,341	0.0	-298,341	0.0
2	32.9	30.7	-382,486	0.0	-300,817	0.0	-300,817	0.0	-300,817	0.0	-300,817	0.0
3	33.1	31.3	-359,256	0.0	-300,889	0.0	-300,889	0.0	-300,889	0.0	-300,889	0.0
4	33.9	32.1	-341,202	0.0	-298,697	0.0	-298,697	0.0	-298,697	0.0	-298,697	0.0
5	35.2	33.5	-326,931	0.0	-294,681	0.0	-294,681	0.0	-294,681	0.0	-294,681	0.0
6	37.0	35.4	-313,100	0.0	-289,102	0.0	-289,102	0.0	-289,102	0.0	-289,102	0.0
7	39.0	37.6	-299,517	0.0	-282,607	0.0	-282,607	0.0	-282,607	0.0	-282,607	0.0
8	41.3	40.1	-284,731	0.0	-274,387	0.0	-274,387	0.0	-274,387	0.0	-274,387	0.0
9	43.7	42.5	-265,470	0.0	-263,818	0.0	-263,818	0.0	-263,818	0.0	-263,818	0.0
10	46.1	44.0	-234,676	0.0	-220,497	0.0	-220,497	0.0	-220,497	0.0	-220,497	0.0
11	48.4	45.0	-112,218	0.0	-200,665	0.0	-200,665	0.0	-200,665	0.0	-200,665	0.0
12	50.5	45.6	-83,725	0.0	-192,401	0.0	-192,401	0.0	-192,401	0.0	-192,401	0.0
13	52.2	46.1	-65,792	0.0	-179,735	0.0	-179,735	0.0	-179,735	0.0	-179,735	0.0
14	53.5	46.4	-49,122	0.0	-168,758	0.0	-168,758	0.0	-168,758	0.0	-168,758	0.0
15	54.3	46.3	-29,280	0.0	-153,631	0.0	-153,631	0.0	-153,631	0.0	-153,631	0.0
16	54.6	46.1	-11,461	0.0	-143,589	0.0	-143,589	0.0	-143,589	0.0	-143,589	0.0
17	54.0	45.9	-18,584	0.0	-144,250	0.0	-144,250	0.0	-144,250	0.0	-144,250	0.0
18	52.5	45.0	-59,826	0.0	-159,885	0.0	-159,885	0.0	-159,885	0.0	-159,885	0.0
19	50.1	44.8	-97,807	0.0	-179,187	0.0	-179,187	0.0	-179,187	0.0	-179,187	0.0
20	47.1	43.3	-134,778	0.0	-205,743	0.0	-205,743	0.0	-205,743	0.0	-205,743	0.0
21	43.7	40.4	-160,030	0.0	-225,753	0.0	-225,753	0.0	-225,753	0.0	-225,753	0.0
22	40.4	37.3	-186,236	0.0	-252,003	0.0	-252,003	0.0	-252,003	0.0	-252,003	0.0
23	37.3	34.9	-202,291	0.0	-271,946	0.0	-271,946	0.0	-271,946	0.0	-271,946	0.0
24	34.9	32.6	-215,183	0.0	-292,069	0.0	-292,069	0.0	-292,069	0.0	-292,069	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-209,255	0.0	-246,327	0.0	-246,327	0.0	-246,327	0.0	-246,327	0.0
2	39.7	37.1	-219,650	0.0	-262,003	0.0	-262,003	0.0	-262,003	0.0	-262,003	0.0
3	37.8	35.1	-233,236	0.0	-273,223	0.0	-273,223	0.0	-273,223	0.0	-273,223	0.0
4	36.3	33.8	-239,607	0.0	-284,626	0.0	-284,626	0.0	-284,626	0.0	-284,626	0.0
5	35.1	32.6	-243,873	0.0	-292,249	0.0	-292,249	0.0	-292,249	0.0	-292,249	0.0
6	34.4	32.0	-243,860	0.0	-295,504	0.0	-295,504	0.0	-295,504	0.0	-295,504	0.0
7	34.1	31.9	-239,632	0.0	-297,750	0.0	-297,750	0.0	-297,750	0.0	-297,750	0.0
8	34.6	32.4	-222,067	0.0	-296,820	0.0	-296,820	0.0	-296,820	0.0	-296,820	0.0
9	36.0	33.8	-171,626	0.0	-290,554	0.0	-290,554	0.0	-290,554	0.0	-290,554	0.0
10	38.2	34.7	-123,232	0.0	-255,715	0.0	-255,715	0.0	-255,715	0.0	-255,715	0.0
11	40.9	36.2	-88,019	0.0	-239,077	0.0	-239,077	0.0	-239,077	0.0	-239,077	0.0
12	43.9	37.4	-62,129	0.0	-223,135	0.0	-223,135	0.0	-223,135	0.0	-223,135	0.0
13	46.9	39.4	-46,967	0.0	-202,138	0.0	-202,138	0.0	-202,138	0.0	-202,138	0.0
14	49.7	41.4	-32,899	0.0	-186,171	0.0	-186,171	0.0	-186,171	0.0	-186,171	0.0
15	51.8	42.8	-7,121	0.0	-161,624	0.0	-161,624	0.0	-161,624	0.0	-161,624	0.0
16	53.2	43.9	0	0.0	-145,444	0.0	-145,444	0.0	-145,444	0.0	-145,444	0.0
17	53.7	44.2	0	0.0	-137,152	0.0	-137,152	0.0	-137,152	0.0	-137,152	0.0
18	53.4	44.4	0	0.0	-138,095	0.0	-138,095	0.0	-138,095	0.0	-138,095	0.0
19	52.7	44.4	-63,926	0.0	-159,242	0.0	-159,242	0.0	-159,242	0.0	-159,242	0.0
20	51.5	45.2	-103,490	0.0	-175,143	0.0	-175,143	0.0	-175,143	0.0	-175,143	0.0
21	50.0	44.6	-137,550	0.0	-188,915	0.0	-188,915	0.0	-188,915	0.0	-188,915	0.0
22	48.1	43.3	-160,942	0.0	-203,691	0.0	-203,691	0.0	-203,691	0.0	-203,691	0.0
23	46.1	41.8	-179,078	0.0	-215,850	0.0	-215,850	0.0	-215,850	0.0	-215,850	0.0
24	43.9	40.1	-197,465	0.0	-233,036	0.0	-233,036	0.0	-233,036	0.0	-233,036	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-76,688	0.0	0	0.0	-138,569	0.0	-138,569	0.0	-138,569	0.0
2	48.7	44.6	-94,400	0.0	0	0.0	-158,497	0.0	-158,497	0.0	-158,497	0.0
3	46.6	42.9	-104,095	0.0	0	0.0	-168,657	0.0	-168,657	0.0	-168,657	0.0
4	44.9	41.4	-117,567	0.0	-137,307	0.0	-183,689	0.0	-183,689	0.0	-183,689	0.0
5	43.9	40.8	-122,189	0.0	-189,734	0.0	-189,734	0.0	-189,734	0.0	-189,734	0.0
6	43.5	40.8	-121,910	0.0	-198,979	0.0	-198,979	0.0	-198,979	0.0	-198,979	0.0
7	44.0	41.4	-117,378	0.0	-196,117	0.0	-196,117	0.0	-196,117	0.0	-196,117	0.0
8	45.4	42.7	-72,751	0.0	-172,236	0.0	-172,236	0.0	-172,236	0.0	-172,236	0.0
9	47.7	44.3	-21,752	0.0	-145,813	0.0	-145,813	0.0	-145,813	0.0	-145,813	0.0
10	50.6	45.8	0	0.0	-114,563	0.0	-114,563	0.0	-114,563	0.0	-114,563	0.0
11	53.9	47.4	0	0.0	-85,457	0.0	-85,457	0.0	-85,457	0.0	-85,457	0.0
12	57.4	49.0	0	0.0	-62,488	0.0	-62,488	0.0	-62,488	0.0	-62,488	0.0
13	60.7	50.8	0	0.0	-47,177	0.0	-47,177	0.0	-47,177	0.0	-47,177	0.0
14	63.6	52.7	0	0.0	-21,951	0.0	-21,951	0.0	-21,951	0.0	-21,951	0.0
15	65.9	53.7	0	0.0	-7,793	0.0	-7,793	0.0	-7,793	0.0	-7,793	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	8.3	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	10.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	-23,609	0.0	-43,589	0.0	-43,589	0.0	-43,589	0.0	-43,589	0.0
22	60.0	54.1	-2,554	0.0	-76,544	0.0	-76,544	0.0	-76,544	0.0	-76,544	0.0
23	57.1	51.9	0	0.0	-98,445	0.0	-98,445	0.0	-98,445	0.0	-98,445	0.0
24	54.2	49.4	0	0.0	-117,769	0.0	-117,769	0.0	-117,769	0.0	-117,769	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9	52.1	0	0.0	0	0.0	-31,517	0.0	-31,517	0.0	-31,517	0.0
10	58.9	53.2	0	0.0	-10,876	0.0	-13,236	0.0	-13,236	0.0	-13,236	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	17.9	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	21.3	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	21.5	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	15.6	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	10.9	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	7.7	-15,959	0.0	-15,959	0.0	-15,959	0.0	-15,959	0.0
22	68.0	62.5	0	4.8	-9,906	0.0	-9,906	0.0	-9,906	0.0	-9,906	0.0
23	65.7	60.5	0	2.9	-28,776	0.0	-28,776	0.0	-28,776	0.0	-28,776	0.0
24	63.4	58.5	0	1.4	-3,025	0.0	-3,025	0.0	-3,025	0.0	-3,025	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

May			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	3.1	0	0.6	0	0.7	0	0.7	0	0.7
2	65.7	61.5	0	5.8	-12,881	0.0	-12,881	0.0	-12,881	0.0	-12,881	0.0
3	63.6	59.7	0	4.4	-31,630	0.0	-31,630	0.0	-31,630	0.0	-31,630	0.0
4	61.8	58.4	0	3.7	-41,949	0.0	-41,949	0.0	-41,949	0.0	-41,949	0.0
5	60.5	57.1	0	2.8	-3,881	0.0	-3,881	0.0	-3,881	0.0	-3,881	0.0
6	59.7	56.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	13.4	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	17.2	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	20.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	22.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	24.1	0	10.1	0	10.1	0	10.1	0	10.1
14	81.9	65.3	0	25.7	0	12.7	0	12.7	0	12.7	0	12.7
15	84.1	66.9	0	27.8	0	15.4	0	15.4	0	15.4	0	15.4
16	84.9	67.1	0	28.8	0	16.2	0	16.2	0	16.2	0	16.2
17	84.6	67.3	0	29.0	0	16.9	0	16.9	0	16.9	0	16.9
18	83.8	67.1	0	27.3	0	16.3	0	16.3	0	16.3	0	16.3
19	82.4	67.5	0	23.9	0	13.8	0	13.8	0	13.8	0	13.8
20	80.6	68.9	0	18.9	0	10.7	0	10.7	0	10.7	0	10.7
21	78.5	71.0	0	15.4	0	8.4	0	8.4	0	8.4	0	8.4
22	76.1	69.9	0	12.3	0	6.1	0	6.1	0	6.1	0	6.1
23	73.4	68.0	0	10.2	0	4.4	0	4.4	0	4.4	0	4.4
24	70.8	65.5	0	8.6	0	2.3	0	2.3	0	2.3	0	2.3

June			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	14.6	0	6.7	0	8.7	0	8.7	0	8.7
2	72.6	68.4	0	13.5	0	5.1	0	6.0	0	6.0	0	6.0
3	70.9	67.3	0	12.2	0	4.2	0	4.6	0	4.6	0	4.6
4	69.6	66.5	0	11.5	0	3.0	0	3.0	0	3.0	0	3.0
5	68.7	65.8	0	11.0	0	2.3	0	2.3	0	2.3	0	2.3
6	68.5	65.7	0	10.5	0	1.6	0	1.6	0	1.6	0	1.6
7	69.0	66.3	0	13.2	0	3.0	0	3.0	0	3.0	0	3.0
8	70.6	66.9	0	16.9	0	5.1	0	5.1	0	5.1	0	5.1
9	73.0	67.7	0	22.1	0	7.9	0	7.9	0	7.9	0	7.9
10	76.1	68.1	0	26.2	0	11.3	0	11.4	0	11.4	0	11.4
11	79.5	69.1	0	28.8	0	14.5	0	14.5	0	14.5	0	14.5
12	82.9	70.1	0	30.7	0	16.7	0	16.7	0	16.7	0	16.7
13	86.0	71.0	0	32.1	0	18.4	0	18.4	0	18.4	0	18.4
14	88.4	72.5	0	34.2	0	21.2	0	21.2	0	21.2	0	21.2
15	90.0	74.0	0	35.9	0	25.3	0	25.3	0	25.3	0	25.3
16	90.5	73.7	0	35.9	0	25.3	0	25.3	0	25.3	0	25.3
17	90.3	74.2	0	35.9	0	26.3	0	26.3	0	26.3	0	26.3
18	89.4	73.9	0	35.9	0	25.7	0	25.7	0	25.7	0	25.7
19	88.1	74.5	0	35.8	0	23.6	0	23.6	0	23.6	0	23.6
20	86.4	75.3	0	27.8	0	19.7	0	19.7	0	19.7	0	19.7
21	84.3	76.5	0	22.3	0	18.9	0	18.9	0	18.9	0	18.9
22	81.9	75.7	0	19.7	0	16.8	0	16.8	0	16.8	0	16.8
23	79.5	74.0	0	17.7	0	14.6	0	14.6	0	14.6	0	14.6
24	77.0	72.1	0	15.9	0	11.3	0	11.3	0	11.3	0	11.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	18.1	0	5.3	0	7.0	0	7.0	0	7.0
2	72.4	69.4	0	14.8	0	5.0	0	5.6	0	5.6	0	5.6
3	71.3	68.4	0	12.8	0	3.7	0	3.9	0	3.9	0	3.9
4	70.5	67.7	0	12.0	0	3.0	0	3.0	0	3.0	0	3.0
5	70.0	67.4	0	11.4	0	2.5	0	2.5	0	2.5	0	2.5
6	69.9	67.5	0	10.8	0	1.7	0	1.8	0	1.8	0	1.8
7	70.3	68.0	0	13.5	0	3.0	0	3.0	0	3.0	0	3.0
8	71.7	69.0	0	18.0	0	5.8	0	5.9	0	5.9	0	5.9
9	73.7	69.5	0	22.6	0	9.0	0	9.0	0	9.0	0	9.0
10	76.2	70.6	0	25.7	0	13.5	0	13.5	0	13.5	0	13.5
11	78.9	71.8	0	27.8	0	15.6	0	15.6	0	15.6	0	15.6
12	81.4	73.0	0	30.3	0	18.2	0	18.2	0	18.2	0	18.2
13	83.4	74.4	0	31.7	0	20.2	0	20.2	0	20.2	0	20.2
14	84.8	74.8	0	33.0	0	21.4	0	21.4	0	21.4	0	21.4
15	85.2	75.0	0	34.9	0	23.3	0	23.3	0	23.3	0	23.3
16	85.1	75.0	0	35.9	0	23.9	0	23.9	0	23.9	0	23.9
17	84.6	74.7	0	35.9	0	23.3	0	23.3	0	23.3	0	23.3
18	83.8	74.6	0	35.9	0	22.9	0	22.9	0	22.9	0	22.9
19	82.7	74.6	0	34.9	0	21.3	0	21.3	0	21.3	0	21.3
20	81.4	74.4	0	25.6	0	17.8	0	17.8	0	17.8	0	17.8
21	79.9	74.9	0	22.2	0	15.9	0	15.9	0	15.9	0	15.9
22	78.4	74.0	0	19.8	0	13.8	0	13.8	0	13.8	0	13.8
23	76.8	72.7	0	18.1	0	11.2	0	11.2	0	11.2	0	11.2
24	75.2	71.6	0	16.6	0	8.8	0	8.8	0	8.8	0	8.8

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	17.3	0	6.9	0	9.1	0	9.1	0	9.1
2	73.2	70.3	0	13.9	0	5.7	0	6.4	0	6.4	0	6.4
3	71.7	68.9	0	12.2	0	4.9	0	5.1	0	5.1	0	5.1
4	70.4	67.8	0	10.9	0	3.2	0	3.3	0	3.3	0	3.3
5	69.5	66.8	0	10.3	0	2.5	0	2.5	0	2.5	0	2.5
6	68.9	66.4	0	10.2	0	1.4	0	1.4	0	1.4	0	1.4
7	68.7	66.4	0	11.4	0	1.7	0	1.7	0	1.7	0	1.7
8	69.2	66.8	0	15.9	0	3.8	0	3.8	0	3.8	0	3.8
9	70.8	67.7	0	20.9	0	6.2	0	6.3	0	6.3	0	6.3
10	73.2	67.7	0	24.6	0	9.2	0	9.2	0	9.2	0	9.2
11	76.2	68.8	0	27.7	0	11.9	0	12.0	0	12.0	0	12.0
12	79.3	70.3	0	29.3	0	14.3	0	14.3	0	14.3	0	14.3
13	82.3	72.2	0	30.6	0	16.3	0	16.3	0	16.3	0	16.3
14	84.7	73.7	0	33.4	0	19.3	0	19.3	0	19.3	0	19.3
15	86.3	74.6	0	35.4	0	23.0	0	23.0	0	23.0	0	23.0
16	86.8	75.1	0	35.9	0	24.1	0	24.1	0	24.1	0	24.1
17	86.6	75.1	0	35.9	0	24.2	0	24.2	0	24.2	0	24.2
18	86.0	75.3	0	35.9	0	24.8	0	24.8	0	24.8	0	24.8
19	85.1	76.0	0	30.9	0	22.0	0	22.0	0	22.0	0	22.0
20	83.8	76.8	0	24.4	0	19.5	0	19.5	0	19.5	0	19.5
21	82.3	77.2	0	22.1	0	18.2	0	18.2	0	18.2	0	18.2
22	80.6	76.3	0	19.7	0	16.8	0	16.8	0	16.8	0	16.8
23	78.7	75.3	0	17.5	0	14.3	0	14.3	0	14.3	0	14.3
24	76.8	73.7	0	16.0	0	11.3	0	11.3	0	11.3	0	11.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OA WB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	9.1	0	0.9	0	1.5	0	1.5	0	1.5
2	67.6	65.0	0	6.7	-7,919	0.0	-7,919	0.0	-7,919	0.0	-7,919	0.0
3	65.8	63.4	0	5.3	-20,523	0.0	-20,523	0.0	-20,523	0.0	-20,523	0.0
4	64.3	62.2	0	4.6	-34,008	0.0	-34,008	0.0	-34,008	0.0	-34,008	0.0
5	63.1	61.1	0	4.3	-3,184	0.0	-3,184	0.0	-3,184	0.0	-3,184	0.0
6	62.4	60.3	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	4.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	16.0	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	18.6	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	21.9	0	9.2	0	9.2	0	9.2	0	9.2
14	81.2	68.4	0	23.9	0	11.4	0	11.4	0	11.4	0	11.4
15	83.0	70.0	0	25.9	0	13.2	0	13.2	0	13.2	0	13.2
16	83.7	70.5	0	27.4	0	14.6	0	14.6	0	14.6	0	14.6
17	83.4	70.5	0	27.3	0	15.0	0	15.0	0	15.0	0	15.0
18	82.8	70.9	0	24.9	0	14.0	0	14.1	0	14.1	0	14.1
19	81.6	72.7	0	20.1	0	12.0	0	12.1	0	12.1	0	12.1
20	80.1	74.7	0	16.7	0	11.7	0	11.7	0	11.7	0	11.7
21	78.3	74.1	0	13.7	0	10.0	0	10.0	0	10.0	0	10.0
22	76.3	72.4	0	11.6	0	8.0	0	8.0	0	8.0	0	8.0
23	74.1	70.7	0	10.0	0	5.7	0	5.7	0	5.7	0	5.7
24	71.8	68.9	0	8.7	0	3.1	0	3.1	0	3.1	0	3.1

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OA WB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-118,952	0.0	-118,952	0.0	-118,952	0.0
2	50.1	48.6	0	0.0	0	0.0	-131,108	0.0	-131,108	0.0	-131,108	0.0
3	48.4	46.9	0	0.0	0	0.0	-145,075	0.0	-145,075	0.0	-145,075	0.0
4	47.1	45.8	0	0.0	-13,529	0.0	-153,902	0.0	-153,902	0.0	-153,902	0.0
5	46.3	44.8	0	0.0	-165,099	0.0	-165,099	0.0	-165,099	0.0	-165,099	0.0
6	46.0	44.5	0	0.0	-176,310	0.0	-176,310	0.0	-176,310	0.0	-176,310	0.0
7	46.8	45.3	0	0.0	-172,120	0.0	-172,120	0.0	-172,120	0.0	-172,120	0.0
8	48.9	47.5	-49,076	0.0	-143,556	0.0	-143,556	0.0	-143,556	0.0	-143,556	0.0
9	52.2	49.9	-5,220	0.0	-113,283	0.0	-113,283	0.0	-113,283	0.0	-113,283	0.0
10	56.2	52.5	0	0.0	-80,330	0.0	-80,330	0.0	-80,330	0.0	-80,330	0.0
11	60.4	54.4	0	0.0	-47,610	0.0	-47,610	0.0	-47,610	0.0	-47,610	0.0
12	64.4	56.0	0	0.0	-23,134	0.0	-23,134	0.0	-23,134	0.0	-23,134	0.0
13	67.7	57.3	0	0.0	-8,322	0.0	-8,322	0.0	-8,322	0.0	-8,322	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	12.6	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	-16,278	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-39,903	0.0	-39,903	0.0	-39,903	0.0	-39,903	0.0
23	57.0	55.1	0	0.0	-87,156	0.0	-87,156	0.0	-87,156	0.0	-87,156	0.0
24	54.5	52.7	0	0.0	-100,733	0.0	-100,733	0.0	-100,733	0.0	-100,733	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-105,777	0.0	0	0.0	-133,336	0.0	-133,336	0.0	-133,336	0.0
2	49.4 47.3	-116,631	0.0	0	0.0	-151,947	0.0	-151,947	0.0	-151,947	0.0
3	47.2 45.3	-130,899	0.0	-138,164	0.0	-168,659	0.0	-168,659	0.0	-168,659	0.0
4	45.3 43.4	-138,149	0.0	-179,389	0.0	-179,389	0.0	-179,389	0.0	-179,389	0.0
5	43.9 42.2	-146,719	0.0	-191,096	0.0	-191,096	0.0	-191,096	0.0	-191,096	0.0
6	43.0 41.4	-145,622	0.0	-201,724	0.0	-201,724	0.0	-201,724	0.0	-201,724	0.0
7	42.7 41.2	-139,282	0.0	-204,576	0.0	-204,576	0.0	-204,576	0.0	-204,576	0.0
8	43.5 42.0	-112,942	0.0	-198,290	0.0	-198,290	0.0	-198,290	0.0	-198,290	0.0
9	45.9 44.0	-62,781	0.0	-171,084	0.0	-171,084	0.0	-171,084	0.0	-171,084	0.0
10	49.4 46.6	-13,116	0.0	-140,393	0.0	-140,393	0.0	-140,393	0.0	-140,393	0.0
11	53.8 48.6	0	0.0	-118,050	0.0	-118,050	0.0	-118,050	0.0	-118,050	0.0
12	58.4 50.6	0	0.0	-88,248	0.0	-88,248	0.0	-88,248	0.0	-88,248	0.0
13	62.8 52.6	0	0.0	-64,905	0.0	-64,905	0.0	-64,905	0.0	-64,905	0.0
14	66.3 54.5	0	0.0	-35,687	0.0	-35,687	0.0	-35,687	0.0	-35,687	0.0
15	68.7 55.7	0	0.0	-13,636	0.0	-13,636	0.0	-13,636	0.0	-13,636	0.0
16	69.5 56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	0.0	-14,513	0.0	-14,513	0.0	-14,513	0.0	-14,513	0.0
19	66.9 59.4	0	0.0	-36,106	0.0	-36,106	0.0	-36,106	0.0	-36,106	0.0
20	65.0 59.4	0	0.0	-51,994	0.0	-51,994	0.0	-51,994	0.0	-51,994	0.0
21	62.8 58.2	0	0.0	-67,243	0.0	-67,243	0.0	-67,243	0.0	-67,243	0.0
22	60.2 56.1	0	0.0	-87,739	0.0	-87,739	0.0	-87,739	0.0	-87,739	0.0
23	57.5 54.0	0	0.0	-100,585	0.0	-100,585	0.0	-100,585	0.0	-100,585	0.0
24	54.7 51.7	0	0.0	-120,540	0.0	-120,540	0.0	-120,540	0.0	-120,540	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-160,915	0.0	-206,846	0.0	-206,844	0.0	-206,844	0.0	-206,844	0.0
2	43.2 41.1	-169,873	0.0	-222,614	0.0	-222,614	0.0	-222,614	0.0	-222,614	0.0
3	41.8 39.8	-177,305	0.0	-228,896	0.0	-228,896	0.0	-228,896	0.0	-228,896	0.0
4	40.7 38.7	-187,699	0.0	-239,474	0.0	-239,474	0.0	-239,474	0.0	-239,474	0.0
5	40.1 38.4	-191,168	0.0	-242,723	0.0	-242,723	0.0	-242,723	0.0	-242,723	0.0
6	39.9 38.4	-189,956	0.0	-245,227	0.0	-245,227	0.0	-245,227	0.0	-245,227	0.0
7	40.5 39.0	-185,775	0.0	-250,912	0.0	-250,912	0.0	-250,912	0.0	-250,912	0.0
8	42.2 40.7	-175,919	0.0	-239,110	0.0	-239,110	0.0	-239,110	0.0	-239,110	0.0
9	44.9 43.4	-134,115	0.0	-212,418	0.0	-212,418	0.0	-212,418	0.0	-212,418	0.0
10	48.2 45.8	-89,120	0.0	-182,249	0.0	-182,249	0.0	-182,249	0.0	-182,249	0.0
11	51.7 48.3	-51,211	0.0	-160,039	0.0	-160,039	0.0	-160,039	0.0	-160,039	0.0
12	55.0 50.7	-25,956	0.0	-137,649	0.0	-137,649	0.0	-137,649	0.0	-137,649	0.0
13	57.7 52.0	-13,348	0.0	-121,574	0.0	-121,574	0.0	-121,574	0.0	-121,574	0.0
14	59.5 52.6	0	0.0	-108,023	0.0	-108,023	0.0	-108,023	0.0	-108,023	0.0
15	60.1 52.7	0	0.0	-92,731	0.0	-92,731	0.0	-92,731	0.0	-92,731	0.0
16	59.9 52.6	0	0.0	-82,814	0.0	-82,814	0.0	-82,814	0.0	-82,814	0.0
17	59.2 52.1	0	0.0	-88,321	0.0	-88,321	0.0	-88,321	0.0	-88,321	0.0
18	58.2 51.8	0	0.0	-105,971	0.0	-105,971	0.0	-105,971	0.0	-105,971	0.0
19	56.8 52.2	0	0.0	-121,355	0.0	-121,355	0.0	-121,355	0.0	-121,355	0.0
20	55.0 51.4	-32,831	0.0	-136,357	0.0	-136,357	0.0	-136,357	0.0	-136,357	0.0
21	53.1 50.1	-96,892	0.0	-148,215	0.0	-148,215	0.0	-148,215	0.0	-148,215	0.0
22	51.0 48.1	-120,497	0.0	-166,688	0.0	-166,688	0.0	-166,688	0.0	-166,688	0.0
23	48.9 46.2	-135,284	0.0	-180,025	0.0	-180,025	0.0	-180,025	0.0	-180,025	0.0
24	46.9 44.1	-146,481	0.0	-195,443	0.0	-195,443	0.0	-195,443	0.0	-195,443	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
Location: FORT GORDON, GEORGIA
Client: U. S. ARMY CORP OF ENGINEERS
Program User: BON
Comments: BUILDING 24404 (2 BUILDINGS)

-----CARD 08-- Climatic Information-----
Summer Winter Summer Summer Winter Summer Winter
Weather Clearness Clearness Design Design Design Building Ground Ground
Code Number Number Dry Bulb Wet Bulb Dry Bulb Orientation Reflect Reflect
AUGUSTA 90

-----CARD 09-- Load Simulation Periods-----
1st Month Last Month Peak 1st Month Last Month 1st Month Last Month
Cooling Cooling Cooling Summer Summer Daylight Daylight
Simulation Simulation Load Hr Period Period Savings Savings
APR OCT

-----CARD 10 -- Load Simulation Parameters-----
Cooling Heating Airflow Airflow Room Put Wall
Load Load Ventilation Input Output Circulation RA Load
Method Method Method Units Units Rate to Room
CLTD-CLF TETD-TA1 OAHIGH ACTUAL ACTUAL MED-RCR NO

----- Load Section Alternative #1 -----

---- Load Alternative ----
Number Description
1 ENLISTED BARRACKS

-----CARD 20-- General Room Parameters-----
Zone
Room Reference Room Floor Floor Const Plenum Acoustic Floor to Duplicate Duplicate Perimeter
Number Number Descrip Length Width Type Height Resistance Height Floors Rooms per Depth
1 1 ALL THREE FLOORS 14103 2 0 10 3

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				5			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	277	9.5		7	0			
1	2	50.75	9.5		7	90			
1	3	277	9.55		7	180			
1	4	50.75	9.5		7	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Percent Visible Transmittance	Inside Visible Reflectance
1	1	31.7	10	1	1.03	.82					
1	3	31	10	1	1.03	.82					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	70	PEOPLE	255	325	1	WATT-SF	ASHRAE2				

CHBD 20 - Miscellaneous Equipment											
Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	REFRIG	7	KW	FGHEAT						
1	2	DRYER	17	KW	FGHEAT						
1	3	WASHER	.3	KW	FGHEAT						
1	4	MISS	1	KW	FGHEAT						

CHND 27 ROOM AIRFLOW					CHND 27 ROOM AIRFLOW					
-----Ventilation-----					-----Infiltration-----					
Room Number	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		--Reheat Minimum--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		

Room Number	Main				Auxiliary				Room Exhaust	
	Cooling		Heating		Cooling		Heating		Value	Units
1	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
	1	CFM-SF	1	CFM-SF						

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-----CARD 39-- System Alternative -----
Number      Description
1           FAN COILS SYSTEM

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System		-----OPTIONAL VENTILATION SYSTEM-----					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Pressure
1	FC						

System	Ref #1		Ref #2		Ref #3		Ref #4		Ref #5		Ref #6	
Set	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
Number												
	1	1										

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

FC (Utility file not found)

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

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*****  
*****  
**                                     **  
**          TRACE  600  ANALYSIS          **  
**                                     **  
**          by          **  
**                                     **  
*****  
*****
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 24402 (1 BUILDING)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 15:25:10 8/25/94
Dataset Name: FGTPS32 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>		Mo/Hr: 8/16		*		Mo/Hr: 6/17		*		Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*		OADB: 98		*		OADB: 23		
				*				*				
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	29,719	0		29,719	18.74	*	31,996	34.93	*	-18,295	-18,295	11.31
Glass Solar	34,768	0		34,768	21.93	*	35,368	38.61	*	0	0	0.00
Glass Cond	6,429	0		6,429	4.05	*	7,286	7.95	*	-15,562	-15,562	9.62
Wall Cond	7,681	0		7,681	4.84	*	8,654	9.45	*	-15,639	-15,639	9.67
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	11,889			11,889	7.50	*	8,294	9.05	*	-20,110	-20,110	12.44
Sub Total==>	90,486	0		90,486	57.07	*	91,597	100.00	*	-69,606	-69,606	43.04
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	68,072	42.93	*	0	0.00	*	0	-92,110	56.96
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	90,486	0	0	158,558	100.00	*	91,597	100.00	*	-69,606	-161,716	100.00

-----COOLING COIL SELECTION-----

	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	13.2	158.6	129.3	10,520	78.7	68.5	89.1	67.2	64.2	86.0	10,520	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Totals	13.2	158.6								Roof	11,076	0
										Wall	4,028	599 15

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	17.5	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	1,845	1,845	Clg Cfm/Sqft	1.00	SADB	67.2	74.0
Main Htg	-161.7	10,520	60.1	74.0	Infil	322	403	Clg Cfm/Ton	796.17	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	10,520	10,520	Clg Sqft/Ton	796.17	Return	75.0	68.0
Preheat	-82.2	10,520	60.1	67.2	Mincfm	0	0	Clg Btuh/Sqft	15.07	Ret/OA	78.7	60.1
Reheat	0.0	0	0.0	0.0	Return	10,520	10,520	No. People	123	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,845	1,845	Htg % OA	17.5	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-161.7				Auxil	0	0	Htg Btuh/Sqft	-15.37	Fn Frict	0.0	0.0

-----AIRFLOWS (cfm)-----

-----ENGINEERING CHECKS-----

-----TEMPERATURES (F)-----

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	0	0.0	0	0.0	-57,977	0.0	-57,977	0.0	-57,977	0.0
2	32.9	30.7	0	0.0	0	0.0	-61,081	0.0	-61,081	0.0	-61,081	0.0
3	33.1	31.3	0	0.0	0	0.0	-61,987	0.0	-61,987	0.0	-61,987	0.0
4	33.9	32.1	0	0.0	0	0.0	-60,550	0.0	-60,550	0.0	-60,550	0.0
5	35.2	33.5	0	0.0	0	0.0	-58,803	0.0	-58,803	0.0	-58,803	0.0
6	37.0	35.4	0	0.0	-3,020	0.0	-55,201	0.0	-55,201	0.0	-55,201	0.0
7	39.0	37.6	0	0.0	-50,337	0.0	-50,336	0.0	-50,336	0.0	-50,336	0.0
8	41.3	40.1	0	0.0	-45,106	0.0	-45,106	0.0	-45,106	0.0	-45,106	0.0
9	43.7	42.5	0	0.0	-33,596	0.0	-33,596	0.0	-33,596	0.0	-33,596	0.0
10	46.1	44.0	0	0.0	-22,770	0.0	-22,770	0.0	-22,770	0.0	-22,770	0.0
11	48.4	45.0	0	0.0	-10,338	0.0	-10,338	0.0	-10,338	0.0	-10,338	0.0
12	50.5	45.6	0	0.0	-1,347	0.0	-1,347	0.0	-1,347	0.0	-1,347	0.0
13	52.2	46.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	53.5	46.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	54.3	46.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	54.6	46.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	54.0	45.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	52.5	45.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	50.1	44.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	47.1	43.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	43.7	40.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	40.4	37.3	0	0.0	-879	0.0	-879	0.0	-879	0.0	-879	0.0
23	37.3	34.9	0	0.0	-43,764	0.0	-43,764	0.0	-43,764	0.0	-43,764	0.0
24	34.9	32.6	0	0.0	-51,915	0.0	-51,915	0.0	-51,915	0.0	-51,915	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-16,891	0.0	0	0.0	-25,416	0.0	-25,416	0.0	-25,416	0.0
2	39.7	37.1	-22,206	0.0	0	0.0	-40,446	0.0	-40,446	0.0	-40,446	0.0
3	37.8	35.1	-26,101	0.0	0	0.0	-46,497	0.0	-46,497	0.0	-46,497	0.0
4	36.3	33.8	-29,570	0.0	0	0.0	-51,452	0.0	-51,452	0.0	-51,452	0.0
5	35.1	32.6	-31,608	0.0	0	0.0	-56,379	0.0	-56,379	0.0	-56,379	0.0
6	34.4	32.0	-32,289	0.0	0	0.0	-58,355	0.0	-58,355	0.0	-58,355	0.0
7	34.1	31.9	-30,281	0.0	-55,378	0.0	-60,837	0.0	-60,837	0.0	-60,837	0.0
8	34.6	32.4	-23,550	0.0	-58,953	0.0	-58,953	0.0	-58,953	0.0	-58,953	0.0
9	36.0	33.8	-6,455	0.0	-49,903	0.0	-49,903	0.0	-49,903	0.0	-49,903	0.0
10	38.2	34.7	0	0.0	-39,008	0.0	-39,008	0.0	-39,008	0.0	-39,008	0.0
11	40.9	36.2	0	0.0	-27,003	0.0	-27,003	0.0	-27,003	0.0	-27,003	0.0
12	43.9	37.4	0	0.0	-16,760	0.0	-16,760	0.0	-16,760	0.0	-16,760	0.0
13	46.9	39.4	0	0.0	-4,774	0.0	-4,774	0.0	-4,774	0.0	-4,774	0.0
14	49.7	41.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	51.8	42.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	53.2	43.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	53.7	44.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	53.4	44.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	52.7	44.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	51.5	45.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	50.0	44.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	48.1	43.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	46.1	41.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	43.9	40.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWE	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	48.7	44.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	46.6	42.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	44.9	41.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	43.9	40.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	43.5	40.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	44.0	41.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	45.4	42.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	47.7	44.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	50.6	45.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	53.9	47.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	57.4	49.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	60.7	50.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	63.6	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9	53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWE	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9	52.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	58.9	53.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	84.9	67.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	84.6	67.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	83.8	67.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	82.4	67.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	80.6	68.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	78.5	71.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	76.1	69.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	73.4	68.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	70.8	65.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	72.6	68.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	70.9	67.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	69.6	66.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	79.5	69.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	82.9	70.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	86.0	71.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	88.4	72.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	90.0	74.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	90.5	73.7	0	7.7	0	0.0	0	0.0	0	0.0	0	0.0
17	90.3	74.2	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
18	89.4	73.9	0	7.1	0	0.0	0	0.0	0	0.0	0	0.0
19	88.1	74.5	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
20	86.4	75.3	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
21	84.3	76.5	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
22	81.9	75.7	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
23	79.5	74.0	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
24	77.0	72.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
2	72.4	69.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
3	71.3	68.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
4	70.5	67.7		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
5	70.0	67.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
6	69.9	67.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
7	70.3	68.0		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
8	71.7	69.0		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
9	73.7	69.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
10	76.2	70.6		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
11	78.9	71.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
12	81.4	73.0		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
13	83.4	74.4		0		1.6		0		0.0		0		0.0		0		0.0		0		0.0
14	84.8	74.8		0		6.7		0		0.0		0		0.0		0		0.0		0		0.0
15	85.2	75.0		0		7.1		0		0.0		0		0.0		0		0.0		0		0.0
16	85.1	75.0		0		7.3		0		0.0		0		0.0		0		0.0		0		0.0
17	84.6	74.7		0		7.3		0		0.0		0		0.0		0		0.0		0		0.0
18	83.8	74.6		0		6.6		0		0.0		0		0.0		0		0.0		0		0.0
19	82.7	74.6		0		5.3		0		0.0		0		0.0		0		0.0		0		0.0
20	81.4	74.4		0		3.5		0		0.0		0		0.0		0		0.0		0		0.0
21	79.9	74.9		0		2.2		0		0.0		0		0.0		0		0.0		0		0.0
22	78.4	74.0		0		1.0		0		0.0		0		0.0		0		0.0		0		0.0
23	76.8	72.7		0		0.1		0		0.0		0		0.0		0		0.0		0		0.0
24	75.2	71.6		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
2	73.2	70.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
3	71.7	68.9		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
4	70.4	67.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
5	69.5	66.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
6	68.9	66.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
7	68.7	66.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
8	69.2	66.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
9	70.8	67.7		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
10	73.2	67.7		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
11	76.2	68.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
12	79.3	70.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
13	82.3	72.2		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
14	84.7	73.7		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
15	86.3	74.6		0		5.7		0		0.0		0		0.0		0		0.0		0		0.0
16	86.8	75.1		0		8.1		0		0.0		0		0.0		0		0.0		0		0.0
17	86.6	75.1		0		7.4		0		0.0		0		0.0		0		0.0		0		0.0
18	86.0	75.3		0		6.5		0		0.0		0		0.0		0		0.0		0		0.0
19	85.1	76.0		0		5.0		0		0.0		0		0.0		0		0.0		0		0.0
20	83.8	76.8		0		3.3		0		0.0		0		0.0		0		0.0		0		0.0
21	82.3	77.2		0		2.0		0		0.0		0		0.0		0		0.0		0		0.0
22	80.6	76.3		0		0.7		0		0.0		0		0.0		0		0.0		0		0.0
23	78.7	75.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
24	76.8	73.7		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

September			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	69.6	67.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
2	67.6	65.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
3	65.8	63.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
4	64.3	62.2	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
5	63.1	61.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
6	62.4	60.3	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
7	62.2	60.2	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
8	62.9	60.9	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
9	64.7	61.8	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
10	67.6	62.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
11	71.1	63.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
12	74.8	64.6	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
13	78.3	66.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
14	81.2	68.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
15	83.0	70.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
16	83.7	70.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
17	83.4	70.5	0	0.5		0	0.0		0	0.0		0	0.0		0	0.0	
18	82.8	70.9	0	4.2		0	0.0		0	0.0		0	0.0		0	0.0	
19	81.6	72.7	0	2.5		0	0.0		0	0.0		0	0.0		0	0.0	
20	80.1	74.7	0	1.0		0	0.0		0	0.0		0	0.0		0	0.0	
21	78.3	74.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
22	76.3	72.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
23	74.1	70.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
24	71.8	68.9	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

October			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	52.2	50.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
2	50.1	48.6	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
3	48.4	46.9	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
4	47.1	45.8	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
5	46.3	44.8	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
6	46.0	44.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
7	46.8	45.3	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
8	48.9	47.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
9	52.2	49.9	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
10	56.2	52.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
11	60.4	54.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
12	64.4	56.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
13	67.7	57.3	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
14	69.8	58.2	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
15	70.6	58.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
16	70.3	57.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
17	69.5	57.3	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
18	68.2	57.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
19	66.5	60.6	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
20	64.4	60.8	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
21	62.1	59.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
22	59.6	57.3	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
23	57.0	55.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
24	54.5	52.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONES

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	49.4	47.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	47.2	45.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	45.3	43.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	43.9	42.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	43.0	41.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	42.7	41.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	43.5	42.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	45.9	44.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	49.4	46.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	53.8	48.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	58.4	50.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	62.8	52.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	66.3	54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7	51.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	43.2	41.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	41.8	39.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	40.7	38.7	0	0.0	0	0.0	0	0.0	-3,629	0.0	-3,629	0.0
5	40.1	38.4	0	0.0	0	0.0	-3,749	0.0	-40,226	0.0	-40,226	0.0
6	39.9	38.4	0	0.0	0	0.0	-41,716	0.0	-41,716	0.0	-41,716	0.0
7	40.5	39.0	0	0.0	0	0.0	-41,238	0.0	-41,238	0.0	-41,238	0.0
8	42.2	40.7	0	0.0	0	0.0	-37,630	0.0	-37,630	0.0	-37,630	0.0
9	44.9	43.4	0	0.0	0	0.0	-26,654	0.0	-26,654	0.0	-26,654	0.0
10	48.2	45.8	0	0.0	0	0.0	-12,389	0.0	-12,389	0.0	-12,389	0.0
11	51.7	48.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	55.0	50.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	57.7	52.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	59.5	52.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	60.1	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	59.9	52.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	59.2	52.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	58.2	51.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	56.8	52.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	55.0	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	53.1	50.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	51.0	48.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	48.9	46.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	46.9	44.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

01 Card - Job Information

 Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 24402 (1 BUILDING)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA						90		

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
PR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BATTALION H. Q.

-----CARD 20-- General Room Parameters -----

Room	Zone						Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Room	Floor	Floor	Const	Plenum	Ceiling	Floor	Floors	Rooms per	Depth
	Number	Descrip	Length	Width	Type	Height	Resistance	Height	Multiplier	Zone	
1	1	MAIN ROOM	10520		2	0					

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50							LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1		142	39		4	0	59	
1	2		142	39		4	180	59	

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	142	9.5		3	0			
1	2	70	9.5		3	90			
1	3	142	9.5		3	180			
1	4	70	9.5		3	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	22.7	9.5	1	.55	.82					
1	2	13.2	9.5	1	.55	.82					
1	3	24.4	9.5	1	.55	.82					
1	4	2.8	9.5	1	.55	.82					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	123	PEOPLE	255	325	1.7	WATT-SF	ASHRAE2				

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	P.C.	19.2	KW	FGHEAT						
1	2	PRINTER	1.9	KW	FGHEAT						
1	3	REFRIG	1.2	KW	FGHEAT						
1	4	MICROWAVE\MIS	5.2	KW	FGHEAT						
1	5	COFFEE POT	1000	BTUH	FGHEAT						
1	6	TELEVISION	.3	KW	FGHEAT						
1	7	EWB	4.5	KW	FGHEAT						

		-----Ventilation-----				-----Infiltration-----					
Room Number	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		--Reheat Minimum--		
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units	
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF			

Room Number	Main				Auxiliary				Room Exhaust	
	Cooling		Heating		Cooling		Heating		Value	Units
1	1	CFM-SF	1	CFM-SF						

Number	Description
1	SINGLE ZONES

System		-----OPTIONAL VENTILATION SYSTEM-----					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Pressure
1	SZ						

[illegible]

Utility Description Reference Table

Schedules:

FGHEAT SCHD FOR HEAT LOAD CALCS

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 24410 (5 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 18:17:48 8/16/94
Dataset Name: FGTPS33 .TM

System 1 Block MZ - MULTIZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>					Mo/Hr: 8/16	*	Mo/Hr: 6/17	*	Mo/Hr: 13/ 1			
Outside Air ==>					OADB/WB/HR: 96/ 76/105.0	*	OADB: 98	*	OADB: 23			
						*		*				
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	7,415		7,415	16.86	*	0	0.00	*	0	-4,084	10.58
Glass Solar	10,584	0		10,584	24.07	*	11,880	43.04	*	0	0	0.00
Glass Cond	2,136	0		2,136	4.86	*	2,421	8.77	*	-5,149	-5,149	13.34
Wall Cond	1,854	1,204		3,058	6.95	*	2,266	8.21	*	-4,302	-7,367	19.09
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	7,637			7,637	17.37	*	4,660	16.88	*	-11,298	-11,298	29.27
Sub Total==>	22,212	8,619		30,831	70.12	*	21,227	76.89	*	-20,749	-27,899	72.28
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	631	0	0	631	1.44	*	631	2.29	*	0	0	0.00
Sub Total==>	631	0	0	631	1.44	*	631	2.29	*	0	0	0.00
Ceiling Load	1,915	-1,915		0	0.00	*	2,089	7.57	*	-1,588	0	0.00
Outside Air	0	0	0	9,491	21.59	*	0	0.00	*	0	-11,233	29.10
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	3,658			3,658	8.32	*	3,658	13.25	*	0	0	0.00
Exhaust Heat		-641	0	-641	-1.46	*		0.00	*		532	-1.38
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	28,416	6,063	0	43,970	100.00	*	27,605	100.00	*	-22,337	-38,600	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	2,352
Main Clg	3.7	44.0	36.3	2,352	79.3	67.1	80.7	64.4	61.5	77.7	Part	600
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	2,352
Totals	3.7	44.0									Wall	2,263
												216 10

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	9.6	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	225	225	Clg Cfm/Sqft	1.00	SAOB	64.4	76.6
Main Htg	-31.7	2,352	64.4	76.6	Infil	181	226	Clg Cfm/Ton	641.89	Plenum	77.6	65.9
Aux Htg	0.0	0	0.0	0.0	Supply	2,352	2,352	Clg Sqft/Ton	641.89	Return	77.6	65.9
Preheat	-6.9	2,352	61.8	64.4	Mincfm	0	0	Clg Btuh/Sqft	18.69	Ret/OA	79.3	61.8
Reheat	0.0	0	0.0	0.0	Return	2,352	2,352	No. People	15	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	225	225	Htg % OA	9.6	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0
Total	-38.6				Auxil	0	0	Htg Btuh/SqFt	-16.41	Fn Frict	0.0	0.0

System 2 Block UH - UNIT HEATERS

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>	Mo/Hr: 0/ 0				*	Mo/Hr: 0/ 0				*	Mo/Hr: 13/ 1			
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0				*	OADB: 0				*	OADB: 23			
					*				*					
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct		
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot		
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)		
Envelope Loads						*			*					
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00		
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00		
Roof Cond	0	0		0	0.00	*	0	0.00	*	-4,462	-4,462	7.70		
Glass Solar	0	0		0	0.00	*	0	0.00	*	0	0	0.00		
Glass Cond	0	0		0	0.00	*	0	0.00	*	-4,810	-4,810	8.30		
Wall Cond	0	0		0	0.00	*	0	0.00	*	-12,949	-12,949	22.33		
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00		
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00		
Infiltration	0			0	0.00	*	0	0.00	*	-9,548	-9,548	16.47		
Sub Total==>	0	0		0	0.00	*	0	0.00	*	-31,770	-31,770	54.79		
Internal Loads						*			*					
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00		
People	0			0	0.00	*	0	0.00	*	0	0	0.00		
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00		
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00		
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00		
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	-26,210	45.21		
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00		
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00		
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00		
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00		
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00		
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00		
						*			*					
Grand Total==>	0	0	0	0	0.00	*	0	0.00	*	-31,770	-57,980	100.00		

-----COOLING COIL SELECTION-----

	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	2,448	600
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	2,448	0
Totals	0.0	0.0									1,913	203 11

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
	(Mbh)	(cfm)	Deg F	Deg F	Vent			Clg % OA	0.0	Type	Clg	Htg	
Main Htg	-58.0	2,448	58.3	79.7	Infil	0	525	Clg Cfm/Sqft	0.00	SADB	0.0	79.7	
Aux Htg	0.0	0	0.0	0.0	Supply	0	2,448	Clg Cfm/Ton	0.00	Plenum	0.0	68.0	
Preheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Sqft/Ton	0.00	Return	0.0	68.0	
Reheat	0.0	0	0.0	0.0	Return	0	2,448	Clg Btuh/Sqft	0.00	Ret/OA	0.0	58.3	
Humidif	0.0	0	0.0	0.0	Exhaust	0	525	No. People	0	Runarnd	0.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	21.4	Fn MtrTD	0.0	0.0	
Total	-58.0				Auxil	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0	
								Htg Btuh/SqFt	-23.68	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-60,653	0.0	-23,350	0.0	-21,702	0.0	-21,695	0.0	-21,695	0.0
2	32.9	30.7	-42,925	0.0	-23,191	0.0	-21,881	0.0	-21,876	0.0	-21,875	0.0
3	33.1	31.3	-27,471	0.0	-22,776	0.0	-21,735	0.0	-21,730	0.0	-21,730	0.0
4	33.9	32.1	-29,141	0.0	-21,961	0.0	-21,132	0.0	-21,129	0.0	-21,129	0.0
5	35.2	33.5	-30,319	0.0	-20,796	0.0	-20,137	0.0	-20,135	0.0	-20,135	0.0
6	37.0	35.4	-29,648	0.0	-19,546	0.0	-19,022	0.0	-19,020	0.0	-19,020	0.0
7	39.0	37.6	-28,811	0.0	-18,130	0.0	-17,713	0.0	-17,711	0.0	-17,711	0.0
8	41.3	40.1	-25,923	0.0	-16,571	0.0	-16,240	0.0	-16,238	0.0	-16,238	0.0
9	43.7	42.5	-17,893	0.0	-14,937	0.0	-14,674	0.0	-14,673	0.0	-14,673	0.0
10	46.1	44.0	-11,165	0.0	-13,040	0.0	-12,831	0.0	-12,830	0.0	-12,830	0.0
11	48.4	45.0	-7,408	0.0	-11,029	0.0	-10,863	0.0	-10,862	0.0	-10,862	0.0
12	50.5	45.6	-3,676	0.0	-9,105	0.0	-8,974	0.0	-8,973	0.0	-8,973	0.0
13	52.2	46.1	-806	0.0	-7,562	0.0	-7,457	0.0	-7,457	0.0	-7,457	0.0
14	53.5	46.4	0	0.0	-6,454	0.0	-6,372	0.0	-6,371	0.0	-6,371	0.0
15	54.3	46.3	0	0.0	-5,744	0.0	-5,678	0.0	-5,678	0.0	-5,678	0.0
16	54.6	46.1	0	0.0	-5,380	0.0	-5,328	0.0	-5,328	0.0	-5,328	0.0
17	54.0	45.9	0	0.0	-5,932	0.0	-5,891	0.0	-5,891	0.0	-5,891	0.0
18	52.5	45.0	0	0.0	-7,238	0.0	-7,205	0.0	-7,205	0.0	-7,205	0.0
19	50.1	44.8	-2,358	0.0	-9,414	0.0	-9,388	0.0	-9,388	0.0	-9,388	0.0
20	47.1	43.3	-5,283	0.0	-11,858	0.0	-11,837	0.0	-11,837	0.0	-11,837	0.0
21	43.7	40.4	-7,676	0.0	-14,537	0.0	-14,521	0.0	-14,521	0.0	-14,521	0.0
22	40.4	37.3	-9,889	0.0	-16,860	0.0	-16,847	0.0	-16,847	0.0	-16,847	0.0
23	37.3	34.9	-11,468	0.0	-19,046	0.0	-19,035	0.0	-19,035	0.0	-19,035	0.0
24	34.9	32.6	-12,866	0.0	-20,681	0.0	-20,673	0.0	-20,673	0.0	-20,673	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-11,403	0.0	-15,663	0.0	-15,924	0.0	-15,925	0.0	-15,925	0.0
2	39.7	37.1	-12,715	0.0	-17,266	0.0	-17,474	0.0	-17,474	0.0	-17,474	0.0
3	37.8	35.1	-13,947	0.0	-18,619	0.0	-18,784	0.0	-18,785	0.0	-18,785	0.0
4	36.3	33.8	-14,849	0.0	-19,649	0.0	-19,780	0.0	-19,781	0.0	-19,781	0.0
5	35.1	32.6	-15,398	0.0	-20,592	0.0	-20,697	0.0	-20,697	0.0	-20,697	0.0
6	34.4	32.0	-15,505	0.0	-21,059	0.0	-21,142	0.0	-21,143	0.0	-21,143	0.0
7	34.1	31.9	-15,187	0.0	-21,266	0.0	-21,332	0.0	-21,332	0.0	-21,332	0.0
8	34.6	32.4	-14,212	0.0	-20,925	0.0	-20,978	0.0	-20,978	0.0	-20,978	0.0
9	36.0	33.8	-12,336	0.0	-19,706	0.0	-19,747	0.0	-19,747	0.0	-19,747	0.0
10	38.2	34.7	-9,407	0.0	-17,631	0.0	-17,664	0.0	-17,664	0.0	-17,664	0.0
11	40.9	36.2	-5,819	0.0	-15,078	0.0	-15,104	0.0	-15,105	0.0	-15,105	0.0
12	43.9	37.4	-2,258	0.0	-12,382	0.0	-12,402	0.0	-12,402	0.0	-12,402	0.0
13	46.9	39.4	0	0.0	-9,989	0.0	-10,005	0.0	-10,005	0.0	-10,005	0.0
14	49.7	41.4	0	0.0	-7,688	0.0	-7,701	0.0	-7,701	0.0	-7,701	0.0
15	51.8	42.8	0	0.0	-6,101	0.0	-6,111	0.0	-6,111	0.0	-6,111	0.0
16	53.2	43.9	0	0.0	-5,186	0.0	-5,194	0.0	-5,194	0.0	-5,194	0.0
17	53.7	44.2	0	0.0	-4,957	0.0	-4,963	0.0	-4,963	0.0	-4,963	0.0
18	53.4	44.4	0	0.0	-5,351	0.0	-5,356	0.0	-5,356	0.0	-5,356	0.0
19	52.7	44.4	0	0.0	-6,424	0.0	-6,428	0.0	-6,428	0.0	-6,428	0.0
20	51.5	45.2	-2,373	0.0	-7,836	0.0	-7,839	0.0	-7,839	0.0	-7,839	0.0
21	50.0	44.6	-5,056	0.0	-9,324	0.0	-9,327	0.0	-9,327	0.0	-9,327	0.0
22	48.1	43.3	-7,404	0.0	-11,048	0.0	-11,050	0.0	-11,050	0.0	-11,050	0.0
23	46.1	41.8	-9,281	0.0	-12,654	0.0	-12,656	0.0	-12,656	0.0	-12,656	0.0
24	43.9	40.1	-10,731	0.0	-14,311	0.0	-14,313	0.0	-14,313	0.0	-14,313	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-3,089	0.0	-888	0.0	-5,194	0.0	-5,287	0.0	-5,289	0.0
2	48.7	44.6	-4,393	0.0	-4,342	0.0	-7,763	0.0	-7,837	0.0	-7,839	0.0
3	46.6	42.9	-5,380	0.0	-7,073	0.0	-9,791	0.0	-9,850	0.0	-9,851	0.0
4	44.9	41.4	-6,380	0.0	-8,930	0.0	-11,292	0.0	-11,338	0.0	-11,339	0.0
5	43.9	40.8	-6,841	0.0	-10,645	0.0	-12,291	0.0	-12,328	0.0	-12,329	0.0
6	43.5	40.8	-6,811	0.0	-11,426	0.0	-12,734	0.0	-12,764	0.0	-12,765	0.0
7	44.0	41.4	-6,267	0.0	-11,615	0.0	-12,656	0.0	-12,679	0.0	-12,680	0.0
8	45.4	42.7	-4,785	0.0	-10,880	0.0	-11,707	0.0	-11,725	0.0	-11,726	0.0
9	47.7	44.3	-2,057	0.0	-9,093	0.0	-9,751	0.0	-9,765	0.0	-9,766	0.0
10	50.6	45.8	0	0.0	-6,491	0.0	-7,013	0.0	-7,025	0.0	-7,025	0.0
11	53.9	47.4	0	0.0	-3,480	0.0	-3,894	0.0	-3,903	0.0	-3,904	0.0
12	57.4	49.0	0	0.0	-306	0.0	-634	0.0	-641	0.0	-641	0.0
13	60.7	50.8	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
14	63.6	52.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9	53.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.0	-2,291	0.0	-2,408	0.0	-2,411	0.0	-2,411	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	-761	0.0	-1,136	0.0	-1,136	0.0	-1,136	0.0
7	53.2	51.1	0	0.0	-1,981	0.0	-2,283	0.0	-2,283	0.0	-2,283	0.0
8	53.9	51.5	0	0.0	-2,029	0.0	-2,269	0.0	-2,269	0.0	-2,269	0.0
9	55.9	52.1	0	0.0	-685	0.0	-877	0.0	-877	0.0	-877	0.0
10	58.9	53.2	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	1.4	0	0.1	0	0.1	0	0.1	0	0.1
14	73.2	61.0	0	1.7	0	0.2	0	0.2	0	0.2	0	0.2
15	75.2	62.2	0	1.8	0	0.2	0	0.2	0	0.2	0	0.2
16	75.9	62.2	0	1.9	0	0.2	0	0.2	0	0.2	0	0.2
17	75.6	62.0	0	2.0	0	0.4	0	0.4	0	0.4	0	0.4
18	74.9	61.7	0	1.8	0	0.8	0	0.8	0	0.8	0	0.8
19	73.7	62.0	0	1.4	0	0.6	0	0.6	0	0.6	0	0.6
20	72.1	62.4	0	1.0	0	0.4	0	0.4	0	0.4	0	0.4
21	70.2	63.3	0	0.7	0	0.2	0	0.2	0	0.2	0	0.2
22	68.0	62.5	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

May	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----					
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	68.2	63.5		0		0.2		0		0.1		0		0.1		0		0.1		0		0.1
2	65.7	61.5		0		0.4		0		0.0		0		0.0		0		0.0		0		0.0
3	63.6	59.7		0		0.3		0		0.0		0		0.0		0		0.0		0		0.0
4	61.8	58.4		0		0.2		0		0.0		0		0.0		0		0.0		0		0.0
5	60.5	57.1		0		0.1		0		0.0		0		0.0		0		0.0		0		0.0
6	59.7	56.5		0		0.1		0		0.0		0		0.0		0		0.0		0		0.0
7	59.4	56.5		0		0.3		0		0.0		0		0.0		0		0.0		0		0.0
8	60.1	56.3		0		0.6		0		0.0		0		0.0		0		0.0		0		0.0
9	62.4	56.3		0		1.1		0		0.0		0		0.0		0		0.0		0		0.0
10	65.7	57.2		0		1.4		0		0.0		0		0.0		0		0.0		0		0.0
11	69.9	58.9		0		1.7		0		0.0		0		0.0		0		0.0		0		0.0
12	74.3	60.9		0		1.9		0		0.1		0		0.1		0		0.1		0		0.1
13	78.5	63.7		0		2.1		0		0.8		0		0.8		0		0.8		0		0.8
14	81.9	65.3		0		2.2		0		1.2		0		1.2		0		1.2		0		1.2
15	84.1	66.9		0		2.5		0		1.4		0		1.4		0		1.4		0		1.4
16	84.9	67.1		0		2.6		0		1.5		0		1.5		0		1.5		0		1.5
17	84.6	67.3		0		2.6		0		1.6		0		1.6		0		1.6		0		1.6
18	83.8	67.1		0		2.4		0		1.5		0		1.5		0		1.5		0		1.5
19	82.4	67.5		0		2.1		0		1.3		0		1.3		0		1.3		0		1.3
20	80.6	68.9		0		1.6		0		1.1		0		1.1		0		1.1		0		1.1
21	78.5	71.0		0		1.3		0		1.0		0		1.0		0		1.0		0		1.0
22	76.1	69.9		0		1.0		0		0.8		0		0.8		0		0.8		0		0.8
23	73.4	68.0		0		0.8		0		0.5		0		0.5		0		0.5		0		0.5
24	70.8	65.5		0		0.7		0		0.3		0		0.3		0		0.3		0		0.3

June	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----					
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	74.7	70.1			0	1.4			0	0.7			0	0.8			0	0.8			0	0.8
2	72.6	68.4			0	1.1			0	0.5			0	0.5			0	0.5			0	0.5
3	70.9	67.3			0	1.0			0	0.4			0	0.4			0	0.4			0	0.4
4	69.6	66.5			0	0.9			0	0.3			0	0.3			0	0.3			0	0.3
5	68.7	65.8			0	0.8			0	0.1			0	0.1			0	0.1			0	0.1
6	68.5	65.7			0	0.8			0	0.1			0	0.1			0	0.1			0	0.1
7	69.0	66.3			0	1.1			0	0.3			0	0.3			0	0.3			0	0.3
8	70.6	66.9			0	1.5			0	0.5			0	0.5			0	0.5			0	0.5
9	73.0	67.7			0	1.9			0	0.8			0	0.8			0	0.8			0	0.8
10	76.1	68.1			0	2.2			0	1.2			0	1.2			0	1.2			0	1.2
11	79.5	69.1			0	2.5			0	1.4			0	1.4			0	1.4			0	1.4
12	82.9	70.1			0	2.7			0	1.7			0	1.7			0	1.7			0	1.7
13	86.0	71.0			0	2.9			0	1.8			0	1.8			0	1.8			0	1.8
14	88.4	72.5			0	3.0			0	2.1			0	2.1			0	2.1			0	2.1
15	90.0	74.0			0	3.2			0	2.5			0	2.5			0	2.5			0	2.5
16	90.5	73.7			0	3.3			0	2.5			0	2.5			0	2.5			0	2.5
17	90.3	74.2			0	3.4			0	2.5			0	2.5			0	2.5			0	2.5
18	89.4	73.9			0	3.2			0	2.5			0	2.5			0	2.5			0	2.5
19	88.1	74.5			0	2.9			0	2.3			0	2.3			0	2.3			0	2.3
20	86.4	75.3			0	2.4			0	1.9			0	1.9			0	1.9			0	1.9
21	84.3	76.5			0	2.1			0	1.7			0	1.7			0	1.7			0	1.7
22	81.9	75.7			0	1.8			0	1.5			0	1.5			0	1.5			0	1.5
23	79.5	74.0			0	1.6			0	1.3			0	1.3			0	1.3			0	1.3
24	77.0	72.1			0	1.5			0	1.0			0	1.0			0	1.0			0	1.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		1.5		0		0.5		0		0.6		0		0.6		0		0.6
2	72.4	69.4		0		1.2		0		0.5		0		0.5		0		0.5		0		0.5
3	71.3	68.4		0		1.1		0		0.3		0		0.3		0		0.3		0		0.3
4	70.5	67.7		0		1.0		0		0.2		0		0.2		0		0.2		0		0.2
5	70.0	67.4		0		1.0		0		0.2		0		0.2		0		0.2		0		0.2
6	69.9	67.5		0		0.9		0		0.0		0		0.0		0		0.0		0		0.0
7	70.3	68.0		0		1.2		0		0.2		0		0.2		0		0.2		0		0.2
8	71.7	69.0		0		1.5		0		0.6		0		0.6		0		0.6		0		0.6
9	73.7	69.5		0		2.0		0		0.9		0		0.9		0		0.9		0		0.9
10	76.2	70.6		0		2.3		0		1.3		0		1.3		0		1.3		0		1.3
11	78.9	71.8		0		2.5		0		1.6		0		1.6		0		1.6		0		1.6
12	81.4	73.0		0		2.7		0		1.8		0		1.8		0		1.8		0		1.8
13	83.4	74.4		0		2.8		0		2.0		0		2.0		0		2.0		0		2.0
14	84.8	74.8		0		3.0		0		2.1		0		2.1		0		2.1		0		2.1
15	85.2	75.0		0		3.1		0		2.3		0		2.3		0		2.3		0		2.3
16	85.1	75.0		0		3.3		0		2.3		0		2.3		0		2.3		0		2.3
17	84.6	74.7		0		3.3		0		2.3		0		2.3		0		2.3		0		2.3
18	83.8	74.6		0		3.2		0		2.3		0		2.3		0		2.3		0		2.3
19	82.7	74.6		0		2.9		0		2.1		0		2.1		0		2.1		0		2.1
20	81.4	74.4		0		2.4		0		1.8		0		1.8		0		1.8		0		1.8
21	79.9	74.9		0		2.1		0		1.5		0		1.5		0		1.5		0		1.5
22	78.4	74.0		0		1.8		0		1.2		0		1.2		0		1.2		0		1.2
23	76.8	72.7		0		1.6		0		1.0		0		1.0		0		1.0		0		1.0
24	75.2	71.6		0		1.5		0		0.8		0		0.8		0		0.8		0		0.8

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0		1.4		0		0.6		0		0.8		0		0.8		0		0.8
2	73.2	70.3		0		1.1		0		0.5		0		0.6		0		0.6		0		0.6
3	71.7	68.9		0		1.0		0		0.4		0		0.4		0		0.4		0		0.4
4	70.4	67.8		0		0.9		0		0.2		0		0.2		0		0.2		0		0.2
5	69.5	66.8		0		0.8		0		0.1		0		0.2		0		0.2		0		0.2
6	68.9	66.4		0		0.8		0		0.0		0		0.0		0		0.0		0		0.0
7	68.7	66.4		0		0.9		0		0.0		0		0.0		0		0.0		0		0.0
8	69.2	66.8		0		1.4		0		0.3		0		0.3		0		0.3		0		0.3
9	70.8	67.7		0		1.8		0		0.6		0		0.6		0		0.6		0		0.6
10	73.2	67.7		0		2.1		0		1.0		0		1.0		0		1.0		0		1.0
11	76.2	68.8		0		2.4		0		1.2		0		1.2		0		1.2		0		1.2
12	79.3	70.3		0		2.6		0		1.4		0		1.4		0		1.4		0		1.4
13	82.3	72.2		0		2.8		0		1.6		0		1.6		0		1.6		0		1.6
14	84.7	73.7		0		3.0		0		1.9		0		1.9		0		1.9		0		1.9
15	86.3	74.6		0		3.2		0		2.2		0		2.2		0		2.2		0		2.2
16	86.8	75.1		0		3.3		0		2.3		0		2.3		0		2.3		0		2.3
17	86.6	75.1		0		3.3		0		2.4		0		2.4		0		2.4		0		2.4
18	86.0	75.3		0		3.1		0		2.4		0		2.4		0		2.4		0		2.4
19	85.1	76.0		0		2.7		0		2.1		0		2.1		0		2.1		0		2.1
20	83.8	76.8		0		2.3		0		1.8		0		1.8		0		1.8		0		1.8
21	82.3	77.2		0		2.0		0		1.6		0		1.6		0		1.6		0		1.6
22	80.6	76.3		0		1.8		0		1.5		0		1.5		0		1.5		0		1.5
23	78.7	75.3		0		1.6		0		1.2		0		1.2		0		1.2		0		1.2
24	76.8	73.7		0		1.4		0		1.0		0		1.0		0		1.0		0		1.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	0.8	0	0.1	0	0.1	0	0.1	0	0.1
2	67.6	65.0	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	1.8	0	0.1	0	0.1	0	0.1	0	0.1
13	78.3	66.7	0	2.0	0	0.6	0	0.7	0	0.7	0	0.7
14	81.2	68.4	0	2.2	0	1.2	0	1.2	0	1.2	0	1.2
15	83.0	70.0	0	2.4	0	1.4	0	1.4	0	1.4	0	1.4
16	83.7	70.5	0	2.5	0	1.6	0	1.6	0	1.6	0	1.6
17	83.4	70.5	0	2.5	0	1.6	0	1.6	0	1.6	0	1.6
18	82.8	70.9	0	2.2	0	1.5	0	1.5	0	1.5	0	1.5
19	81.6	72.7	0	1.8	0	1.3	0	1.3	0	1.3	0	1.3
20	80.1	74.7	0	1.6	0	1.2	0	1.2	0	1.2	0	1.2
21	78.3	74.1	0	1.4	0	1.0	0	1.0	0	1.0	0	1.0
22	76.3	72.4	0	1.1	0	0.7	0	0.7	0	0.7	0	0.7
23	74.1	70.7	0	0.9	0	0.5	0	0.5	0	0.5	0	0.5
24	71.8	68.9	0	0.7	0	0.3	0	0.3	0	0.3	0	0.3

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-3,930	0.0	-4,076	0.0	-4,082	0.0
2	50.1	48.6	0	0.0	-2,835	0.0	-6,109	0.0	-6,226	0.0	-6,230	0.0
3	48.4	46.9	0	0.0	-5,242	0.0	-7,852	0.0	-7,945	0.0	-7,948	0.0
4	47.1	45.8	0	0.0	-7,023	0.0	-9,103	0.0	-9,177	0.0	-9,180	0.0
5	46.3	44.8	-278	0.0	-8,297	0.0	-9,954	0.0	-10,013	0.0	-10,015	0.0
6	46.0	44.5	-1,301	0.0	-9,254	0.0	-10,573	0.0	-10,620	0.0	-10,622	0.0
7	46.8	45.3	-1,483	0.0	-9,220	0.0	-10,270	0.0	-10,308	0.0	-10,309	0.0
8	48.9	47.5	-550	0.0	-7,986	0.0	-8,822	0.0	-8,852	0.0	-8,853	0.0
9	52.2	49.9	0	0.0	-5,752	0.0	-6,417	0.0	-6,441	0.0	-6,441	0.0
10	56.2	52.5	0	0.0	-2,532	0.0	-3,061	0.0	-3,080	0.0	-3,080	0.0
11	60.4	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	64.4	56.0	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.3	0	0.1	0	0.1	0	0.1	0	0.1
16	70.3	57.5	0	0.8	0	0.0	0	0.1	0	0.1	0	0.1
17	69.5	57.3	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	-1,488	0.0	-1,671	0.0	-1,678	0.0	-1,678	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI-ZONE SYSTEMS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-1,280	0.0	-2,072	0.0	-6,535	0.0	-6,625	0.0	-6,627	0.0
2	49.4	47.3	-3,226	0.0	-5,174	0.0	-8,730	0.0	-8,802	0.0	-8,803	0.0
3	47.2	45.3	-4,979	0.0	-7,592	0.0	-10,424	0.0	-10,482	0.0	-10,483	0.0
4	45.3	43.4	-6,278	0.0	-9,696	0.0	-11,952	0.0	-11,998	0.0	-11,999	0.0
5	43.9	42.2	-7,082	0.0	-11,169	0.0	-12,967	0.0	-13,003	0.0	-13,004	0.0
6	43.0	41.4	-7,290	0.0	-12,294	0.0	-13,725	0.0	-13,754	0.0	-13,755	0.0
7	42.7	41.2	-6,746	0.0	-12,791	0.0	-13,932	0.0	-13,955	0.0	-13,955	0.0
8	43.5	42.0	-5,421	0.0	-12,437	0.0	-13,345	0.0	-13,363	0.0	-13,364	0.0
9	45.9	44.0	-2,905	0.0	-10,826	0.0	-11,549	0.0	-11,564	0.0	-11,564	0.0
10	49.4	46.6	0	0.0	-8,052	0.0	-8,628	0.0	-8,640	0.0	-8,640	0.0
11	53.8	48.6	0	0.0	-4,440	0.0	-4,898	0.0	-4,907	0.0	-4,907	0.0
12	58.4	50.6	0	0.0	-775	0.0	-1,138	0.0	-1,145	0.0	-1,145	0.0
13	62.8	52.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	66.3	54.5	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	0.0	-1,661	0.0	-1,803	0.0	-1,806	0.0	-1,806	0.0
24	54.7	51.7	0	0.0	-4,232	0.0	-4,345	0.0	-4,348	0.0	-4,348	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-6,917	0.0	-13,318	0.0	-13,637	0.0	-13,638	0.0	-13,638	0.0
2	43.2	41.1	-8,389	0.0	-14,542	0.0	-14,796	0.0	-14,797	0.0	-14,797	0.0
3	41.8	39.8	-9,531	0.0	-15,499	0.0	-15,701	0.0	-15,702	0.0	-15,702	0.0
4	40.7	38.7	-10,433	0.0	-16,343	0.0	-16,504	0.0	-16,504	0.0	-16,504	0.0
5	40.1	38.4	-11,080	0.0	-16,734	0.0	-16,862	0.0	-16,862	0.0	-16,862	0.0
6	39.9	38.4	-11,122	0.0	-16,845	0.0	-16,947	0.0	-16,947	0.0	-16,947	0.0
7	40.5	39.0	-10,654	0.0	-16,432	0.0	-16,513	0.0	-16,513	0.0	-16,513	0.0
8	42.2	40.7	-9,699	0.0	-15,196	0.0	-15,260	0.0	-15,260	0.0	-15,260	0.0
9	44.9	43.4	-7,845	0.0	-13,352	0.0	-13,403	0.0	-13,403	0.0	-13,403	0.0
10	48.2	45.8	-5,181	0.0	-10,724	0.0	-10,765	0.0	-10,765	0.0	-10,765	0.0
11	51.7	48.3	-1,860	0.0	-7,784	0.0	-7,817	0.0	-7,817	0.0	-7,817	0.0
12	55.0	50.7	0	0.0	-4,992	0.0	-5,017	0.0	-5,017	0.0	-5,017	0.0
13	57.7	52.0	0	0.0	-2,802	0.0	-2,823	0.0	-2,823	0.0	-2,823	0.0
14	59.5	52.6	0	0.0	-1,424	0.0	-1,440	0.0	-1,440	0.0	-1,440	0.0
15	60.1	52.7	0	0.0	-941	0.0	-954	0.0	-954	0.0	-954	0.0
16	59.9	52.6	0	0.0	-1,122	0.0	-1,132	0.0	-1,132	0.0	-1,132	0.0
17	59.2	52.1	0	0.0	-1,786	0.0	-1,794	0.0	-1,794	0.0	-1,794	0.0
18	58.2	51.8	0	0.0	-2,927	0.0	-2,933	0.0	-2,933	0.0	-2,933	0.0
19	56.8	52.2	0	0.0	-4,401	0.0	-4,406	0.0	-4,406	0.0	-4,406	0.0
20	55.0	51.4	0	0.0	-6,135	0.0	-6,139	0.0	-6,139	0.0	-6,139	0.0
21	53.1	50.1	0	0.0	-7,762	0.0	-7,765	0.0	-7,765	0.0	-7,765	0.0
22	51.0	48.1	-2,497	0.0	-9,349	0.0	-9,352	0.0	-9,352	0.0	-9,352	0.0
23	48.9	46.2	-4,607	0.0	-10,875	0.0	-10,877	0.0	-10,877	0.0	-10,877	0.0
24	46.9	44.1	-6,166	0.0	-12,265	0.0	-12,266	0.0	-12,266	0.0	-12,266	0.0

01 Card - Job Information

 Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 24410 (5 BUILDINGS)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	OFFICES AND CLASSROOMS

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	OFFICE AREA	49	48	2	6		15.5			

-----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	STORAGE AREA	51	48	2	0		15.5			

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50					HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				5			
2	1	YES				5			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	48	15.5		181	0			
1	2	49	15.5		181	90			
1	3	49	15.5		181	270			
2	1	51	12.75		181	90			
2	2	26	12.75		181	180			
2	3	22	12.75	.61		180			
2	4	51	12.75		181	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1				.55	.82					
1	2	132	1	1	.48	.56					
1	3	4	1.5	14	.55	.82					
2	1	70	1	1	.55	.82					
2	4	133	1	1	.48	.56					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	15	PEOPLE	255	325	1.4	WATT-SF	ASHRAE2				
2	35	PEOPLE	315	435	1.4	WATT-SF	SUSFLUOR				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	P.C.	1	KW	FGHEAT						
1	2	COPIER	.7	KW	FGHEAT						
1	3	REFRIG	.6	KW	FGHEAT						
1	4	VENDING	1.2	KW	FGHEAT						
1	5	TV	.2	KW							

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----		-----Heating-----		-----Infiltration-----		-----Heating-----		--Reheat Minimum--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		
2			15	CFM-P			.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----		-----Heating-----		-----Cooling-----		-----Heating-----		--Room Exhaust--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1	CFM-SF	1	CFM-SF						
2			1	CFM-SF						

-----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	48	12.5	.49					2
2	1	48	12.5	.49					1

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	MULTI-ZONE SYSTEMS

-----CARD 40-- System Type -----

		-----OPTIONAL VENTILATION SYSTEM-----					
System		Ventil					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Pressure
1	MZ						
2	UH						

-----CARD 41-- Zone Assignment -----

System	Ref #1		Ref #2		Ref #3		Ref #4		Ref #5		Ref #6	
Set	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
1	1	1										
2	2	2										

-----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path
1											
2											

-----CARD 48-- Cooling Capacity Overrides -----

System	Misc			-----MAIN COOLING-----				---AUX COOLING---	
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units
1			75						

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE
FGHEAT SCHD FOR HEAT LOAD CALCS
HTGCONST SAMPLE HEATING TSTAT SCHEDULE
YES AVAILABLE (100%)

System:

MZ (Utility file not found)
UH (Utility file not found)

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour Util Percent

0 100
24

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*****  
*****  
**                                     **  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by              **  
**                                     **  
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 24414 (1 BUILDING)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 18:52: 7 8/16/94
Dataset Name: FGTYP534 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)					Mo/Hr: 8/16	*	Mo/Hr: 6/16	*	Mo/Hr: 13/ 1			
Outside Air ==)					OADB/WB/HR: 96/ 76/105.0	*	OADB: 100	*	OADB: 23			
						*		*				
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	19,590	0		19,590	32.10	*	21,393	51.75	*	-10,965	-10,965	14.79
Glass Solar	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Wall Cond	8,811	0		8,811	14.44	*	9,688	23.43	*	-9,863	-9,863	13.30
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	12,533			12,533	20.54	*	10,259	24.82	*	-23,362	-23,362	31.51
Sub Total==)	40,934	0		40,934	67.08	*	41,340	100.00	*	-44,190	-44,190	59.60
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	20,086	32.92	*	0	0.00	*	0	-29,955	40.40
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==)	40,934	0	0	61,020	100.00	*	41,340	100.00	*	-44,190	-74,145	100.00

-----COOLING COIL SELECTION-----

	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR	Leaving DB/WB/HR	Gross Total	Glass (sf)	(%)
	(Tons)	(Mbh)	(Mbh)	Deg F Deg F Grains	Deg F Deg F Grains	Floor		
Main Clg	5.1	61.0	51.2	6,015 77.1 68.6 92.0	68.8 65.7 90.8	6,015		
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0	1,454		
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0	0		
Totals	5.1	61.0				6,015	0	0
						4,679	0	0

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	10.0	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	600	600	Clg Cfm/Sqft	1.00	SADB	68.8	74.6
Main Htg	-74.1	6,015	63.5	74.6	Infil	374	468	Clg Cfm/Ton	1182.88	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	6,015	6,015	Clg Sqft/Ton	1182.88	Return	75.0	68.0
Preheat	-35.3	6,015	63.5	68.8	Mincfm	0	0	Clg Btuh/Sqft	10.14	Ret/OA	77.1	63.5
Reheat	0.0	0	0.0	0.0	Return	6,015	6,015	No. People	40	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	600	600	Htg % OA	10.0	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-74.1				Auxil	0	0	Htg Btuh/Sqft	-12.33	Fn Frict	0.0	0.0

-----AIRFLOWS (cfm)-----

-----ENGINEERING CHECKS-----

-----TEMPERATURES (F)-----

System 2 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>					Mo/Hr: 8/15	*	Mo/Hr: 6/17	*	Mo/Hr: 13/ 1			
Outside Air ==>					OADB/WB/HR: 97/ 76/105.0	*	OADB: 98	*	OADB: 23			
						*		*				
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	37,076	0		37,076	5.05	*	40,679	12.34	*	-21,335	-21,335	5.56
Glass Solar	43,139	0		43,139	5.87	*	43,139	13.09	*	0	0	0.00
Glass Cond	13,753	0		13,753	1.87	*	15,587	4.73	*	-34,700	-34,700	9.04
Wall Cond	7,541	0		7,541	1.03	*	7,771	2.36	*	-7,377	-7,377	1.92
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	15,271			15,271	2.08	*	8,617	2.61	*	-20,892	-20,892	5.44
Sub Total==>	116,780	0		116,780	15.90	*	115,793	35.13	*	-84,305	-84,305	21.96
Internal Loads						*			*			
Lights	111,848	0		111,848	15.23	*	111,848	33.93	*	0	0	0.00
People	232,000			232,000	31.59	*	102,000	30.94	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	343,848	0	0	343,848	46.83	*	213,848	64.87	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	273,690	37.27	*	0	0.00	*	0	-299,546	78.04
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	460,628	0	0	734,319	100.00	*	329,641	100.00	*	-84,305	-383,851	100.00

-----COOLING COIL SELECTION-----

	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total			Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor			
Main Clg	61.2	734.3	467.2	14,856	83.7	69.6	86.5	55.0	54.2	61.7	Part	11,704		
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0		
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	11,704	0	0
Totals	61.2	734.3									Wall	4,185	685	16

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
	(Mbh)	(cfm)	Deg F	Deg F	Vent			Clg % OA			Type	Clg	Htg
Main Htg	-383.9	14,856	49.8	73.1	Infil	6,000	6,000	Clg Cfm/Sqft	40.4	1.27	SADB	55.0	73.1
Aux Htg	0.0	0	0.0	0.0	Supply	14,856	14,856	Clg Cfm/Ton		242.78	Plenum	75.0	68.0
Preheat	-85.3	14,856	49.8	55.0	Mincfm	0	0	Clg Sqft/Ton		191.26	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Return	14,856	14,856	Clg Btuh/Sqft		62.74	Ret/OA	83.7	49.8
Humidif	0.0	0	0.0	0.0	Exhaust	6,000	6,000	No. People		400	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	40.4		Fn MtrTD	0.0	0.0
Total	-383.9				Auxil	0	0	Htg Cfm/SqFt	1.27		Fn BldTD	0.0	0.0
								Htg Btuh/SqFt	-32.80		Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-278,484	0.0	-44,040	0.0	-142,305	0.0	-142,305	0.0	-142,305	0.0
2	32.9	30.7	-110,168	0.0	-44,584	0.0	-140,353	0.0	-140,353	0.0	-140,353	0.0
3	33.1	31.3	-76,684	0.0	-156,578	0.0	-141,869	0.0	-141,869	0.0	-141,869	0.0
4	33.9	32.1	-82,255	0.0	-136,626	0.0	-136,323	0.0	-136,323	0.0	-136,323	0.0
5	35.2	33.5	-85,333	0.0	-127,836	0.0	-127,594	0.0	-127,594	0.0	-127,594	0.0
6	37.0	35.4	-81,577	0.0	-115,082	0.0	-114,889	0.0	-114,889	0.0	-114,889	0.0
7	39.0	37.6	-72,430	0.0	-98,743	0.0	-98,590	0.0	-98,590	0.0	-98,590	0.0
8	41.3	40.1	-56,541	0.0	-80,520	0.0	-80,398	0.0	-80,398	0.0	-80,398	0.0
9	43.7	42.5	-41,800	0.0	-52,123	0.0	-52,026	0.0	-52,026	0.0	-52,026	0.0
10	46.1	44.0	-38,451	0.0	-36,169	0.0	-36,092	0.0	-36,092	0.0	-36,092	0.0
11	48.4	45.0	-34,328	0.0	-34,051	0.0	-33,989	0.0	-33,989	0.0	-33,989	0.0
12	50.5	45.6	-29,783	7.6	-28,097	0.0	-27,780	0.0	-27,780	0.0	-27,780	0.0
13	52.2	46.1	-23,837	13.0	-21,710	0.0	-21,710	0.0	-21,710	0.0	-21,710	0.0
14	53.5	46.4	-5,666	14.9	-18,428	2.5	-18,428	2.5	-18,428	2.5	-18,428	2.5
15	54.3	46.3	-2,143	16.0	-17,131	7.0	-17,131	7.0	-17,131	7.0	-17,131	7.0
16	54.6	46.1	-1,261	15.7	-15,191	7.4	-15,191	7.4	-15,191	7.4	-15,191	7.4
17	54.0	45.9	-3,525	14.6	-16,201	6.9	-16,201	6.9	-16,201	6.9	-16,201	6.9
18	52.5	45.0	-8,075	11.6	-17,722	5.4	-17,722	5.4	-17,722	5.4	-17,722	5.4
19	50.1	44.8	-15,178	8.5	-20,528	3.2	-20,528	3.2	-20,528	3.2	-20,528	3.2
20	47.1	43.3	-22,038	5.6	-25,678	0.5	-25,678	0.5	-25,678	0.5	-25,678	0.5
21	43.7	40.4	-27,693	3.3	-30,535	0.0	-30,535	0.0	-30,535	0.0	-30,535	0.0
22	40.4	37.3	-32,624	1.3	-35,865	0.0	-35,865	0.0	-35,865	0.0	-35,865	0.0
23	37.3	34.9	-33,982	0.0	-38,720	0.0	-38,720	0.0	-38,720	0.0	-38,720	0.0
24	34.9	32.6	-35,232	0.0	-42,245	0.0	-42,245	0.0	-42,245	0.0	-42,245	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-35,285	0.0	-38,005	0.0	-35,614	0.0	-35,614	0.0	-35,614	0.0
2	39.7	37.1	-41,846	0.0	-38,294	0.0	-37,557	0.0	-37,557	0.0	-37,557	0.0
3	37.8	35.1	-52,148	0.0	-40,306	0.0	-40,306	0.0	-40,306	0.0	-40,306	0.0
4	36.3	33.8	-60,179	0.0	-77,588	0.0	-97,584	0.0	-97,584	0.0	-97,584	0.0
5	35.1	32.6	-64,395	0.0	-124,445	0.0	-124,445	0.0	-124,445	0.0	-124,445	0.0
6	34.4	32.0	-64,050	0.0	-131,267	0.0	-131,267	0.0	-131,267	0.0	-131,267	0.0
7	34.1	31.9	-56,508	0.0	-136,219	0.0	-136,219	0.0	-136,219	0.0	-136,219	0.0
8	34.6	32.4	-38,962	0.0	-131,699	0.0	-131,699	0.0	-131,699	0.0	-131,699	0.0
9	36.0	33.8	-37,309	0.0	-112,171	0.0	-112,171	0.0	-112,171	0.0	-112,171	0.0
10	38.2	34.7	-34,821	0.0	-86,690	0.0	-86,690	0.0	-86,690	0.0	-86,690	0.0
11	40.9	36.2	-31,356	0.0	-56,287	0.0	-56,287	0.0	-56,287	0.0	-56,287	0.0
12	43.9	37.4	-25,057	9.2	-37,586	0.0	-37,586	0.0	-37,586	0.0	-37,586	0.0
13	46.9	39.4	-7,891	12.6	-34,830	0.0	-34,830	0.0	-34,830	0.0	-34,830	0.0
14	49.7	41.4	-3,433	14.3	-25,613	0.0	-25,613	0.0	-25,613	0.0	-25,613	0.0
15	51.8	42.8	-773	15.5	-20,579	0.0	-20,579	0.0	-20,579	0.0	-20,579	0.0
16	53.2	43.9	0	15.5	-19,233	4.0	-19,233	4.0	-19,233	4.0	-19,233	4.0
17	53.7	44.2	-710	14.7	-17,480	6.7	-17,480	6.7	-17,480	6.7	-17,480	6.7
18	53.4	44.4	-5,125	12.6	-17,617	6.2	-17,617	6.2	-17,617	6.2	-17,617	6.2
19	52.7	44.4	-12,116	9.2	-19,298	4.9	-19,298	4.9	-19,298	4.9	-19,298	4.9
20	51.5	45.2	-19,227	6.3	-22,530	3.5	-22,530	3.5	-22,530	3.5	-22,530	3.5
21	50.0	44.6	-26,363	3.9	-24,531	2.2	-24,531	2.2	-24,531	2.2	-24,531	2.2
22	48.1	43.3	-31,301	2.0	-28,103	0.6	-28,103	0.6	-28,103	0.6	-28,103	0.6
23	46.1	41.8	-33,524	0.5	-29,957	0.0	-29,957	0.0	-29,957	0.0	-29,957	0.0
24	43.9	40.1	-34,526	0.0	-33,178	0.0	-33,178	0.0	-33,178	0.0	-33,178	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

March	----- Design -----				----- Weekday -----			----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	
1	51.3	46.8	-21,762	2.8	0	3.0	-22,604	3.2	-22,604	3.2	-22,604	3.2	
2	48.7	44.6	-23,915	4.7	-16,506	0.8	-25,493	0.8	-25,493	0.8	-25,493	0.8	
3	46.6	42.9	-26,575	3.7	-28,506	0.0	-28,506	0.0	-28,506	0.0	-28,506	0.0	
4	44.9	41.4	-28,010	3.0	-30,560	0.0	-30,560	0.0	-30,560	0.0	-30,560	0.0	
5	43.9	40.8	-28,734	2.7	-32,939	0.0	-32,939	0.0	-32,939	0.0	-32,939	0.0	
6	43.5	40.8	-28,385	2.9	-33,851	0.0	-33,851	0.0	-33,851	0.0	-33,851	0.0	
7	44.0	41.4	-27,208	3.6	-33,118	0.0	-33,118	0.0	-33,118	0.0	-33,118	0.0	
8	45.4	42.7	-24,601	5.9	-32,414	0.0	-32,414	0.0	-32,414	0.0	-32,414	0.0	
9	47.7	44.3	-19,091	9.8	-29,792	0.0	-29,792	0.0	-29,792	0.0	-29,792	0.0	
10	50.6	45.8	-10,059	14.1	-23,884	0.0	-23,884	0.0	-23,884	0.0	-23,884	0.0	
11	53.9	47.4	0	18.0	-19,014	1.9	-19,014	1.9	-19,014	1.9	-19,014	1.9	
12	57.4	49.0	0	21.5	-12,346	9.3	-12,346	9.3	-12,346	9.3	-12,346	9.3	
13	60.7	50.8	0	24.1	-7,488	12.6	-7,488	12.6	-7,488	12.6	-7,488	12.6	
14	63.6	52.7	0	26.1	-2,785	15.3	-2,785	15.3	-2,785	15.3	-2,785	15.3	
15	65.9	53.7	0	27.3	0	16.9	0	16.9	0	16.9	0	16.9	
16	67.3	54.4	0	27.4	0	18.0	0	18.0	0	18.0	0	18.0	
17	67.8	54.6	0	25.1	0	18.3	0	18.3	0	18.3	0	18.3	
18	67.4	54.8	0	23.2	0	17.6	0	17.6	0	17.6	0	17.6	
19	66.4	55.2	0	19.2	0	17.4	0	17.4	0	17.4	0	17.4	
20	64.7	56.0	0	15.5	0	17.1	0	17.1	0	17.1	0	17.1	
21	62.5	56.0	0	13.3	0	15.1	0	15.1	0	15.1	0	15.1	
22	60.0	54.1	0	10.4	-5,171	12.6	-5,171	12.6	-5,171	12.6	-5,171	12.6	
23	57.1	51.9	0	8.4	-14,983	9.1	-14,983	9.1	-14,983	9.1	-14,983	9.1	
24	54.2	49.4	0	7.1	-18,591	5.6	-18,591	5.6	-18,591	5.6	-18,591	5.6	

April	----- Design -----				----- Weekday -----			----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	
1	61.0	56.5	-5,621	15.0	0	14.0	0	14.5	0	14.5	0	14.5	
2	58.9	54.9	-7,774	13.9	0	11.7	0	11.6	0	11.6	0	11.6	
3	57.0	53.5	-10,434	13.0	0	9.6	0	9.6	0	9.6	0	9.6	
4	55.4	52.4	-11,632	12.3	0	8.1	0	8.1	0	8.1	0	8.1	
5	54.2	51.4	-12,475	11.9	0	6.2	-12,118	6.2	-12,118	6.2	-12,118	6.2	
6	53.5	50.9	-12,126	12.1	-16,389	5.3	-19,773	5.3	-19,773	5.3	-19,773	5.3	
7	53.2	51.1	-11,066	14.5	-20,375	5.2	-20,375	5.2	-20,375	5.2	-20,375	5.2	
8	53.9	51.5	-7,229	17.5	-19,187	7.0	-19,187	7.0	-19,187	7.0	-19,187	7.0	
9	55.9	52.1	-981	20.8	-16,105	8.7	-16,105	8.7	-16,105	8.7	-16,105	8.7	
10	58.9	53.2	0	24.5	-10,309	11.9	-10,309	11.9	-10,309	11.9	-10,309	11.9	
11	62.6	55.2	0	28.2	-3,635	16.7	-3,635	16.7	-3,635	16.7	-3,635	16.7	
12	66.5	57.3	0	33.3	0	20.3	0	20.3	0	20.3	0	20.3	
13	70.2	59.6	0	36.0	0	23.0	0	23.0	0	23.0	0	23.0	
14	73.2	61.0	0	38.0	0	27.4	0	27.4	0	27.4	0	27.4	
15	75.2	62.2	0	41.7	0	29.5	0	29.5	0	29.5	0	29.5	
16	75.9	62.2	0	39.8	0	29.8	0	29.8	0	29.8	0	29.8	
17	75.6	62.0	0	38.5	0	29.6	0	29.6	0	29.6	0	29.6	
18	74.9	61.7	0	34.2	0	28.9	0	28.9	0	28.9	0	28.9	
19	73.7	62.0	0	30.1	0	27.2	0	27.2	0	27.2	0	27.2	
20	72.1	62.4	0	25.9	0	26.7	0	26.7	0	26.7	0	26.7	
21	70.2	63.3	0	23.8	0	26.4	0	26.4	0	26.4	0	26.4	
22	68.0	62.5	0	21.4	0	24.4	0	24.4	0	24.4	0	24.4	
23	65.7	60.5	0	17.9	0	20.6	0	20.6	0	20.6	0	20.6	
24	63.4	58.5	0	16.2	0	16.8	0	16.8	0	16.8	0	16.8	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

May	----- Design -----					----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	68.2	63.5		0	24.0		0	24.6		0	25.5		0	25.5		0	25.5
2	65.7	61.5		0	22.5		0	21.8		0	21.7		0	21.7		0	21.7
3	63.6	59.7		0	21.5		0	18.0		0	18.0		0	18.0		0	18.0
4	61.8	58.4		0	20.6		0	16.1		0	16.1		0	16.1		0	16.1
5	60.5	57.1		0	18.8		0	13.7		0	13.7		0	13.7		0	13.7
6	59.7	56.5		0	20.2		0	12.6		0	12.6		0	12.6		0	12.6
7	59.4	56.5		0	22.2		0	12.9		0	12.9		0	12.9		0	12.9
8	60.1	56.3		0	25.0		0	14.3		0	14.3		0	14.3		0	14.3
9	62.4	56.3		0	28.6		-2,164	15.3		-4,043	15.3		-4,043	15.3		-4,043	15.3
10	65.7	57.2		0	32.2		-1,367	18.4		-1,367	18.4		-1,367	18.4		-1,367	18.4
11	69.9	58.9		0	36.1		0	22.0		0	22.0		0	22.0		0	22.0
12	74.3	60.9		0	41.2		0	25.5		0	25.5		0	25.5		0	25.5
13	78.5	63.7		0	47.2		0	30.5		0	30.5		0	30.5		0	30.5
14	81.9	65.3		0	47.9		0	35.5		0	35.5		0	35.5		0	35.5
15	84.1	66.9		0	51.1		0	37.9		0	37.9		0	37.9		0	37.9
16	84.9	67.1		0	49.3		0	39.1		0	39.1		0	39.1		0	39.1
17	84.6	67.3		0	47.9		0	40.7		0	40.7		0	40.7		0	40.7
18	83.8	67.1		0	43.4		0	41.7		0	41.7		0	41.7		0	41.7
19	82.4	67.5		0	39.4		0	39.8		0	39.8		0	39.8		0	39.8
20	80.6	68.9		0	37.0		0	40.9		0	40.9		0	40.9		0	40.9
21	78.5	71.0		0	35.0		0	42.4		0	42.4		0	42.4		0	42.4
22	76.1	69.9		0	31.8		0	37.7		0	37.7		0	37.7		0	37.7
23	73.4	68.0		0	29.1		0	32.5		0	32.5		0	32.5		0	32.5
24	70.8	65.5		0	25.5		0	28.1		0	28.1		0	28.1		0	28.1

June	----- Design -----				----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----				
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	74.7	70.1		0	37.7		0	36.7		0	37.4		0	37.4		0	37.4	
2	72.6	68.4		0	36.0		0	33.3		0	33.1		0	33.1		0	33.1	
3	70.9	67.3		0	35.1		0	31.2		0	31.3		0	31.3		0	31.3	
4	69.6	66.5		0	34.0		0	28.3		0	28.2		0	28.2		0	28.2	
5	68.7	65.8		0	33.7		0	27.0		0	27.1		0	27.1		0	27.1	
6	68.5	65.7		0	33.8		0	26.8		0	26.8		0	26.8		0	26.8	
7	69.0	66.3		0	37.5		0	27.7		0	27.7		0	27.7		0	27.7	
8	70.6	66.9		0	40.9		0	29.9		0	29.9		0	29.9		0	29.9	
9	73.0	67.7		0	44.9		0	32.8		0	32.8		0	32.8		0	32.8	
10	76.1	68.1		0	49.2		0	36.4		0	36.4		0	36.4		0	36.4	
11	79.5	69.1		0	53.4		0	39.7		0	39.7		0	39.7		0	39.7	
12	82.9	70.1		0	57.1		0	44.3		0	44.3		0	44.3		0	44.3	
13	86.0	71.0		0	60.0		0	47.9		0	48.0		0	48.0		0	48.0	
14	88.4	72.5		0	62.1		0	53.0		0	53.0		0	53.0		0	53.0	
15	90.0	74.0		0	63.5		0	57.5		0	57.5		0	57.5		0	57.5	
16	90.5	73.7		0	63.6		0	55.8		0	55.8		0	55.8		0	55.8	
17	90.3	74.2		0	62.7		0	57.7		0	57.7		0	57.7		0	57.7	
18	89.4	73.9		0	58.1		0	57.0		0	57.0		0	57.0		0	57.0	
19	88.1	74.5		0	54.6		0	55.0		0	55.0		0	55.0		0	55.0	
20	86.4	75.3		0	50.2		0	54.2		0	54.2		0	54.2		0	54.2	
21	84.3	76.5		0	48.6		0	55.4		0	55.4		0	55.4		0	55.4	
22	81.9	75.7		0	45.6		0	52.5		0	52.5		0	52.5		0	52.5	
23	79.5	74.0		0	43.0		0	47.4		0	47.4		0	47.4		0	47.4	
24	77.0	72.1		0	41.3		0	42.3		0	42.3		0	42.3		0	42.3	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

July	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----					
Hour	OADB	OA WB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		41.0		0		35.5		0		36.1		0		36.1		0		36.1
2	72.4	69.4		0		38.8		0		34.6		0		34.4		0		34.4		0		34.4
3	71.3	68.4		0		38.0		0		31.5		0		31.5		0		31.5		0		31.5
4	70.5	67.7		0		37.3		0		30.4		0		30.4		0		30.4		0		30.4
5	70.0	67.4		0		36.9		0		30.0		0		30.0		0		30.0		0		30.0
6	69.9	67.5		0		36.8		0		29.6		0		29.6		0		29.6		0		29.6
7	70.3	68.0		0		40.4		0		30.4		0		30.4		0		30.4		0		30.4
8	71.7	69.0		0		43.2		0		34.4		0		34.4		0		34.4		0		34.4
9	73.7	69.5		0		46.7		0		37.2		0		37.2		0		37.2		0		37.2
10	76.2	70.6		0		50.2		0		40.6		0		40.6		0		40.6		0		40.6
11	78.9	71.8		0		53.7		0		43.5		0		43.5		0		43.5		0		43.5
12	81.4	73.0		0		59.3		0		50.3		0		50.3		0		50.3		0		50.3
13	83.4	74.4		0		61.7		0		53.7		0		53.7		0		53.7		0		53.7
14	84.8	74.8		0		63.2		0		55.3		0		55.3		0		55.3		0		55.3
15	85.2	75.0		0		64.6		0		56.5		0		56.5		0		56.5		0		56.5
16	85.1	75.0		0		64.7		0		56.5		0		56.5		0		56.5		0		56.5
17	84.6	74.7		0		64.2		0		55.8		0		55.8		0		55.8		0		55.8
18	83.8	74.6		0		59.9		0		54.7		0		54.7		0		54.7		0		54.7
19	82.7	74.6		0		56.9		0		54.9		0		54.9		0		54.9		0		54.9
20	81.4	74.4		0		53.1		0		52.4		0		52.4		0		52.4		0		52.4
21	79.9	74.9		0		49.7		0		51.4		0		51.4		0		51.4		0		51.4
22	78.4	74.0		0		46.9		0		46.8		0		46.8		0		46.8		0		46.8
23	76.8	72.7		0		45.0		0		42.1		0		42.1		0		42.1		0		42.1
24	75.2	71.6		0		43.5		0		39.9		0		39.9		0		39.9		0		39.9

August	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----					
Hour	OADB	OA WB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0		40.5		0		38.8		0		39.5		0		39.5		0		39.5
2	73.2	70.3		0		38.0		0		35.5		0		35.3		0		35.3		0		35.3
3	71.7	68.9		0		37.1		0		33.7		0		33.8		0		33.8		0		33.8
4	70.4	67.8		0		36.2		0		30.7		0		30.7		0		30.7		0		30.7
5	69.5	66.8		0		33.9		0		29.6		0		29.6		0		29.6		0		29.6
6	68.9	66.4		0		35.6		0		27.3		0		27.3		0		27.3		0		27.3
7	68.7	66.4		0		37.0		0		27.0		0		27.0		0		27.0		0		27.0
8	69.2	66.8		0		41.6		0		30.1		0		30.1		0		30.1		0		30.1
9	70.8	67.7		0		45.8		0		32.6		0		32.6		0		32.6		0		32.6
10	73.2	67.7		0		49.9		0		34.2		0		34.2		0		34.2		0		34.2
11	76.2	68.8		0		54.1		0		37.2		0		37.2		0		37.2		0		37.2
12	79.3	70.3		0		57.5		0		42.4		0		42.4		0		42.4		0		42.4
13	82.3	72.2		0		62.4		0		49.2		0		49.2		0		49.2		0		49.2
14	84.7	73.7		0		64.9		0		52.7		0		52.7		0		52.7		0		52.7
15	86.3	74.6		0		66.2		0		57.2		0		57.2		0		57.2		0		57.2
16	86.8	75.1		0		66.3		0		57.9		0		57.9		0		57.9		0		57.9
17	86.6	75.1		0		63.0		0		57.7		0		57.7		0		57.7		0		57.7
18	86.0	75.3		0		60.5		0		59.3		0		59.3		0		59.3		0		59.3
19	85.1	76.0		0		56.9		0		56.9		0		56.9		0		56.9		0		56.9
20	83.8	76.8		0		52.9		0		56.2		0		56.2		0		56.2		0		56.2
21	82.3	77.2		0		51.6		0		55.8		0		55.8		0		55.8		0		55.8
22	80.6	76.3		0		46.7		0		53.2		0		53.2		0		53.2		0		53.2
23	78.7	75.3		0		44.4		0		48.5		0		48.5		0		48.5		0		48.5
24	76.8	73.7		0		42.7		0		43.9		0		43.9		0		43.9		0		43.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	30.2	0	29.6	0	30.3	0	30.3	0	30.3
2	67.6	65.0	0	27.8	0	26.9	0	26.7	0	26.7	0	26.7
3	65.8	63.4	0	25.4	0	23.1	0	23.2	0	23.2	0	23.2
4	64.3	62.2	0	24.4	0	21.5	0	21.5	0	21.5	0	21.5
5	63.1	61.1	0	24.1	0	18.9	0	18.9	0	18.9	0	18.9
6	62.4	60.3	0	24.2	0	17.7	0	17.7	0	17.7	0	17.7
7	62.2	60.2	0	26.6	0	17.5	0	17.5	0	17.5	0	17.5
8	62.9	60.9	0	29.6	0	18.9	0	18.9	0	18.9	0	18.9
9	64.7	61.8	0	34.9	0	21.4	0	21.4	0	21.4	0	21.4
10	67.6	62.1	0	39.1	0	25.0	0	25.0	0	25.0	0	25.0
11	71.1	63.1	0	42.5	0	28.7	0	28.7	0	28.7	0	28.7
12	74.8	64.6	0	46.4	0	32.4	0	32.4	0	32.4	0	32.4
13	78.3	66.7	0	51.5	0	35.5	0	35.5	0	35.5	0	35.5
14	81.2	68.4	0	54.1	0	40.3	0	40.3	0	40.3	0	40.3
15	83.0	70.0	0	55.5	0	44.1	0	44.1	0	44.1	0	44.1
16	83.7	70.5	0	55.6	0	45.1	0	45.0	0	45.0	0	45.0
17	83.4	70.5	0	52.0	0	46.9	0	46.9	0	46.9	0	46.9
18	82.8	70.9	0	48.9	0	47.5	0	47.5	0	47.5	0	47.5
19	81.6	72.7	0	46.8	0	47.2	0	47.2	0	47.2	0	47.2
20	80.1	74.7	0	45.0	0	49.1	0	49.1	0	49.1	0	49.1
21	78.3	74.1	0	41.6	0	46.6	0	46.6	0	46.6	0	46.6
22	76.3	72.4	0	36.7	0	41.6	0	41.6	0	41.6	0	41.6
23	74.1	70.7	0	32.4	0	36.9	0	36.9	0	36.9	0	36.9
24	71.8	68.9	0	30.5	0	32.6	0	32.6	0	32.6	0	32.6

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	9.2	0	4.7	-19,921	5.0	-19,921	5.0	-19,921	5.0
2	50.1	48.6	0	7.0	-839	2.8	-22,335	2.8	-22,335	2.8	-22,335	2.8
3	48.4	46.9	0	6.2	-24,131	0.8	-24,131	0.8	-24,131	0.8	-24,131	0.8
4	47.1	45.8	0	5.5	-27,047	0.0	-27,047	0.0	-27,047	0.0	-27,047	0.0
5	46.3	44.8	-19,413	5.1	-28,369	0.0	-28,369	0.0	-28,369	0.0	-28,369	0.0
6	46.0	44.5	-24,936	5.3	-29,747	0.0	-29,747	0.0	-29,747	0.0	-29,747	0.0
7	46.8	45.3	-23,639	6.0	-29,893	0.0	-29,893	0.0	-29,893	0.0	-29,893	0.0
8	48.9	47.5	-21,033	9.4	-28,657	0.0	-28,657	0.0	-28,657	0.0	-28,657	0.0
9	52.2	49.9	-14,299	13.6	-23,654	1.8	-23,654	1.8	-23,654	1.8	-23,654	1.8
10	56.2	52.5	-6,616	17.6	-18,212	10.3	-18,212	10.3	-18,212	10.3	-18,212	10.3
11	60.4	54.4	0	21.7	-11,170	14.7	-11,170	14.7	-11,170	14.7	-11,170	14.7
12	64.4	56.0	0	25.2	-4,102	18.3	-4,102	18.3	-4,102	18.3	-4,102	18.3
13	67.7	57.3	0	27.8	0	21.1	0	21.1	0	21.1	0	21.1
14	69.8	58.2	0	30.1	0	22.9	0	22.9	0	22.9	0	22.9
15	70.6	58.1	0	31.2	0	23.9	0	23.9	0	23.9	0	23.9
16	70.3	57.5	0	31.1	0	22.3	0	22.3	0	22.3	0	22.3
17	69.5	57.3	0	28.7	0	21.2	0	21.2	0	21.2	0	21.2
18	68.2	57.7	0	26.9	0	21.0	0	21.0	0	21.0	0	21.0
19	66.5	60.6	0	24.5	0	22.2	0	22.2	0	22.2	0	22.2
20	64.4	60.8	0	21.0	0	21.8	0	21.8	0	21.8	0	21.8
21	62.1	59.4	0	18.1	0	18.1	0	18.1	0	18.1	0	18.1
22	59.6	57.3	0	14.3	0	14.1	0	14.1	0	14.1	0	14.1
23	57.0	55.1	0	12.1	-8,753	11.5	-8,753	11.5	-8,753	11.5	-8,753	11.5
24	54.5	52.7	0	10.7	-16,279	8.2	-16,279	8.2	-16,279	8.2	-16,279	8.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-22,967	5.8	-7,322	4.2	-20,429	4.5	-20,429	4.5	-20,429	4.5
2	49.4	47.3	-24,995	4.2	-23,127	1.8	-23,127	1.8	-23,127	1.8	-23,127	1.8
3	47.2	45.3	-27,892	3.2	-26,709	0.0	-26,709	0.0	-26,709	0.0	-26,709	0.0
4	45.3	43.4	-29,326	2.5	-29,051	0.0	-29,051	0.0	-29,051	0.0	-29,051	0.0
5	43.9	42.2	-29,926	2.1	-30,441	0.0	-30,441	0.0	-30,441	0.0	-30,441	0.0
6	43.0	41.4	-29,702	2.4	-32,809	0.0	-32,809	0.0	-32,809	0.0	-32,809	0.0
7	42.7	41.2	-29,268	3.1	-33,526	0.0	-33,526	0.0	-33,526	0.0	-33,526	0.0
8	43.5	42.0	-25,318	5.4	-33,423	0.0	-33,423	0.0	-33,423	0.0	-33,423	0.0
9	45.9	44.0	-20,928	9.5	-31,647	0.0	-31,647	0.0	-31,647	0.0	-31,647	0.0
10	49.4	46.6	-12,515	14.7	-27,187	0.0	-27,187	0.0	-27,187	0.0	-27,187	0.0
11	53.8	48.6	-3,278	19.6	-20,188	0.0	-20,188	0.0	-20,188	0.0	-20,188	0.0
12	58.4	50.6	0	23.4	-14,163	8.3	-14,163	8.3	-14,163	8.3	-14,163	8.3
13	62.8	52.6	0	26.4	-7,448	13.5	-7,448	13.5	-7,448	13.5	-7,448	13.5
14	66.3	54.5	0	27.1	-2,418	16.3	-2,418	16.3	-2,418	16.3	-2,418	16.3
15	68.7	55.7	0	28.0	0	19.7	0	19.7	0	19.7	0	19.7
16	69.5	56.1	0	27.9	0	20.8	0	20.8	0	20.8	0	20.8
17	69.2	55.8	0	26.1	0	18.8	0	18.8	0	18.8	0	18.8
18	68.3	57.0	0	22.6	0	18.4	0	18.4	0	18.4	0	18.4
19	66.9	59.4	0	20.4	0	20.0	0	20.0	0	20.0	0	20.0
20	65.0	59.4	0	17.3	0	19.9	0	19.9	0	19.9	0	19.9
21	62.8	58.2	0	13.2	-4,678	16.7	-4,678	16.7	-4,678	16.7	-4,678	16.7
22	60.2	56.1	0	10.7	-10,654	14.0	-10,654	14.0	-10,654	14.0	-10,654	14.0
23	57.5	54.0	0	8.7	-13,926	10.7	-13,926	10.7	-13,926	10.7	-13,926	10.7
24	54.7	51.7	0	7.2	-16,834	7.0	-16,834	7.0	-16,834	7.0	-16,834	7.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-29,794	2.6	-30,225	0.0	-30,225	0.0	-30,225	0.0	-30,225	0.0
2	43.2	41.1	-31,466	1.5	-33,561	0.0	-33,561	0.0	-33,561	0.0	-33,561	0.0
3	41.8	39.8	-32,217	0.8	-34,785	0.0	-34,785	0.0	-34,785	0.0	-34,785	0.0
4	40.7	38.7	-32,915	0.0	-35,947	0.0	-35,947	0.0	-35,947	0.0	-35,947	0.0
5	40.1	38.4	-33,421	0.0	-37,669	0.0	-37,669	0.0	-37,669	0.0	-37,669	0.0
6	39.9	38.4	-33,359	0.0	-60,558	0.0	-63,219	0.0	-63,219	0.0	-63,219	0.0
7	40.5	39.0	-32,886	0.6	-80,048	0.0	-80,048	0.0	-80,048	0.0	-80,048	0.0
8	42.2	40.7	-31,749	1.8	-66,642	0.0	-66,642	0.0	-66,642	0.0	-66,642	0.0
9	44.9	43.4	-29,880	5.1	-35,147	0.0	-35,147	0.0	-35,147	0.0	-35,147	0.0
10	48.2	45.8	-27,404	8.9	-31,367	0.0	-31,367	0.0	-31,367	0.0	-31,367	0.0
11	51.7	48.3	-16,575	12.5	-24,769	0.0	-24,769	0.0	-24,769	0.0	-24,769	0.0
12	55.0	50.7	-7,050	17.0	-19,537	0.0	-19,537	0.0	-19,537	0.0	-19,537	0.0
13	57.7	52.0	-1,526	19.8	-14,154	8.3	-14,154	8.3	-14,154	8.3	-14,154	8.3
14	59.5	52.6	0	20.2	-11,037	13.1	-11,037	13.1	-11,037	13.1	-11,037	13.1
15	60.1	52.7	0	21.1	-9,367	13.7	-9,367	13.7	-9,367	13.7	-9,367	13.7
16	59.9	52.6	0	21.0	-7,883	14.0	-7,883	14.0	-7,883	14.0	-7,883	14.0
17	59.2	52.1	0	19.5	-8,802	13.1	-8,802	13.1	-8,802	13.1	-8,802	13.1
18	58.2	51.8	0	16.5	-10,400	11.5	-10,400	11.5	-10,400	11.5	-10,400	11.5
19	56.8	52.2	0	13.6	-12,910	9.7	-12,910	9.7	-12,910	9.7	-12,910	9.7
20	55.0	51.4	-5,463	10.9	-16,766	7.6	-16,766	7.6	-16,766	7.6	-16,766	7.6
21	53.1	50.1	-18,030	8.6	-19,816	5.9	-19,816	5.9	-19,816	5.9	-19,816	5.9
22	51.0	48.1	-22,480	6.0	-22,328	3.3	-22,328	3.3	-22,328	3.3	-22,328	3.3
23	48.9	46.2	-25,107	4.5	-26,050	1.3	-26,050	1.3	-26,050	1.3	-26,050	1.3
24	46.9	44.1	-28,122	3.3	-27,973	0.0	-27,973	0.0	-27,973	0.0	-27,973	0.0

01 Card - Job Information

 Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 24414 (1 BUILDING)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter	Building	Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Orientation	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb		Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	OA HIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	DINNING FACILITY

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	KITCHEN	6015		2	0		11			

-----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	DINNING ROOM	11704		2	0		16			

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				5			
2	1	YES				5			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	100.75	14		49	0			
1	2	116.75	14		49	90			
1	3	116.75	14		49	270			
2	1	60	19		49	90			
2	2	100.25	19		49	180			
2	3	60	19		49	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
2	1	24.6	10	1	1.03	.94					
2	2	3.75	1.5	39	1.03	.94					
2	3	3.75	1.5	39	1.03	.94					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	40	PEOPLE	255	325	2.8	WATT-SF	ASHRAE2				
2	400	PEOPLE	255	325	2.8	WATT-SF	ASHRAE2				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	123.2	KW	FGHEAT						
1	2	MISS.GAS	1790	MBH	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

-----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	100.25	14.5	.61					2

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	SINGLE ZONE SYSTEMS

-----OPTIONAL VENTILATION SYSTEM-----

-----CARD 41-- Zone Assignment -----

-----CARD 42--- Fan SP and Duct Parameters-----

CHW 42 Fan Static Data Parameters											
System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHO FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

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*****  
*****  
**                                     **  
**          TRACE   600   ANALYSIS          **  
**                                     **  
**          by          **  
**                                     **  
*****  
*****
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 25410 (6 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 19:10:10 8/16/94
Dataset Name: FGTYP35 .TM

System 1 Block FC - FAN COIL

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)					Mo/Hr: 7/17					Mo/Hr: 6/18					Mo/Hr: 13/ 1				
Outside Air ==)					OADB/WB/HR: 94/ 75/105.0					OADB: 96					OADB: 23				
	Space	Ret. Air	Ret. Air	Net	Perct		Space	Perct		Space Peak	Coil Peak	Perct							
	Sens.+Lat.	Sensible	Latent	Total	Of Tot		Sensible	Of Tot		Space Sens	Tot Sens	Of Tot							
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)		(Btuh)	(%)		(Btuh)	(Btuh)	(%)							
Envelope Loads																			
Skylite Solr	0	0		0	0.00		0	0.00		0	0	0.00							
Skylite Cond	0	0		0	0.00		0	0.00		0	0	0.00							
Roof Cond	16,233	0		16,233	10.36		18,077	14.03		-11,688	-11,688	6.93							
Glass Solar	45,552	0		45,552	29.07		47,424	36.82		0	0	0.00							
Glass Cond	11,376	0		11,376	7.26		13,240	10.28		-31,622	-31,622	18.74							
Wall Cond	30,026	0		30,026	19.16		34,435	26.73		-47,243	-47,243	27.99							
Partition	0			0	0.00		0	0.00		0	0	0.00							
Exposed Floor	0			0	0.00		0	0.00		0	0	0.00							
Infiltration	25,925			25,925	16.55		15,626	12.13		-42,258	-42,258	25.04							
Sub Total==)	129,112	0		129,112	82.41		128,803	100.00		-132,812	-132,812	78.70							
Internal Loads																			
Lights	0	0		0	0.00		0	0.00		0	0	0.00							
People	0			0	0.00		0	0.00		0	0	0.00							
Misc	0	0	0	0	0.00		0	0.00		0	0	0.00							
Sub Total==)	0	0	0	0	0.00		0	0.00		0	0	0.00							
Ceiling Load	0	0		0	0.00		0	0.00		0	0	0.00							
Outside Air	0	0	0	27,565	17.59		0	0.00		0	-35,946	21.30							
Sup. Fan Heat				0	0.00			0.00			0	0.00							
Ret. Fan Heat		0		0	0.00			0.00			0	0.00							
Duct Heat Pkup		0		0	0.00			0.00			0	0.00							
OV/UNDR Sizing	0			0	0.00		0	0.00		0	0	0.00							
Exhaust Heat		0	0	0	0.00			0.00			0	0.00							
Terminal Bypass		0	0	0	-0.00			0.00			0	0.00							
Grand Total==)	129,112	0	0	156,677	100.00		128,803	100.00		-132,812	-168,757	100.00							

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	11,085	
Main Clg	13.1	156.7	131.9	76.2	66.2	81.1	64.5	61.9	79.5	Part	0	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	3,695	0 0
Totals	13.1	156.7								Wall	8,465	624 7

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA			Type	Clg	Htg
					Vent	720	720	Clg Cfm/Sqft	6.5	1.00	SADB	64.5	78.8
Main Htg	-168.8	11,085	65.1	78.8	Infil	677	846	Clg Cfm/Ton	849.01		Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	11,085	11,085	Clg Sqft/Ton	849.01		Return	75.0	68.0
Preheat	-0.0	11,085	65.1	64.5	Mincfm	0	0	Clg Btuh/Sqft	14.13		Ret/OA	76.2	65.1
Reheat	0.0	0	0.0	0.0	Return	11,085	11,085	No. People	48		Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	720	720	Htg % OA	6.5		Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00		Fn BldTD	0.0	0.0
Total	-168.8				Auxil	0	0	Htg Btuh/Sqft	-15.22		Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-143,645	0.0	-86,992	0.0	-86,992	0.0	-86,992	0.0	-86,992	0.0
2	32.9	30.7	-131,240	0.0	-88,810	0.0	-88,810	0.0	-88,810	0.0	-88,810	0.0
3	33.1	31.3	-122,326	0.0	-93,397	0.0	-93,397	0.0	-93,397	0.0	-93,397	0.0
4	33.9	32.1	-115,864	0.0	-93,252	0.0	-93,252	0.0	-93,252	0.0	-93,252	0.0
5	35.2	33.5	-111,234	0.0	-95,715	0.0	-95,715	0.0	-95,715	0.0	-95,715	0.0
6	37.0	35.4	-101,735	0.0	-94,758	0.0	-94,758	0.0	-94,758	0.0	-94,758	0.0
7	39.0	37.6	-92,435	0.0	-94,557	0.0	-94,557	0.0	-94,557	0.0	-94,557	0.0
8	41.3	40.1	-89,669	0.0	-92,524	0.0	-92,524	0.0	-92,524	0.0	-92,524	0.0
9	43.7	42.5	-75,136	0.0	-84,259	0.0	-84,259	0.0	-84,259	0.0	-84,259	0.0
10	46.1	44.0	-60,985	0.0	-78,263	0.0	-78,263	0.0	-78,263	0.0	-78,263	0.0
11	48.4	45.0	-46,864	0.0	-71,676	0.0	-71,676	0.0	-71,676	0.0	-71,676	0.0
12	50.5	45.6	-37,332	0.0	-69,367	0.0	-69,367	0.0	-69,367	0.0	-69,367	0.0
13	52.2	46.1	-30,975	0.0	-64,056	0.0	-64,056	0.0	-64,056	0.0	-64,056	0.0
14	53.5	46.4	-22,439	0.0	-57,201	0.0	-57,201	0.0	-57,201	0.0	-57,201	0.0
15	54.3	46.3	-11,707	0.0	-51,827	0.0	-51,827	0.0	-51,827	0.0	-51,827	0.0
16	54.6	46.1	-2,161	0.0	-44,034	0.0	-44,034	0.0	-44,034	0.0	-44,034	0.0
17	54.0	45.9	0	0.0	-41,450	0.0	-41,450	0.0	-41,450	0.0	-41,450	0.0
18	52.5	45.0	-7,013	0.0	-42,830	0.0	-42,830	0.0	-42,830	0.0	-42,830	0.0
19	50.1	44.8	-18,670	0.0	-45,310	0.0	-45,310	0.0	-45,310	0.0	-45,310	0.0
20	47.1	43.3	-28,094	0.0	-50,870	0.0	-50,870	0.0	-50,870	0.0	-50,870	0.0
21	43.7	40.4	-37,784	0.0	-58,027	0.0	-58,027	0.0	-58,027	0.0	-58,027	0.0
22	40.4	37.3	-46,499	0.0	-66,186	0.0	-66,186	0.0	-66,186	0.0	-66,186	0.0
23	37.3	34.9	-53,906	0.0	-73,406	0.0	-73,406	0.0	-73,406	0.0	-73,406	0.0
24	34.9	32.6	-61,981	0.0	-79,871	0.0	-79,871	0.0	-79,871	0.0	-79,871	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-61,133	0.0	-70,278	0.0	-70,278	0.0	-70,278	0.0	-70,278	0.0
2	39.7	37.1	-66,904	0.0	-75,043	0.0	-75,043	0.0	-75,043	0.0	-75,043	0.0
3	37.8	35.1	-73,522	0.0	-80,421	0.0	-80,421	0.0	-80,421	0.0	-80,421	0.0
4	36.3	33.8	-79,598	0.0	-85,146	0.0	-85,146	0.0	-85,146	0.0	-85,146	0.0
5	35.1	32.6	-82,868	0.0	-90,651	0.0	-90,651	0.0	-90,651	0.0	-90,651	0.0
6	34.4	32.0	-85,226	0.0	-92,794	0.0	-92,794	0.0	-92,794	0.0	-92,794	0.0
7	34.1	31.9	-86,176	0.0	-96,092	0.0	-96,092	0.0	-96,092	0.0	-96,092	0.0
8	34.6	32.4	-82,182	0.0	-95,791	0.0	-95,791	0.0	-95,791	0.0	-95,791	0.0
9	36.0	33.8	-65,774	0.0	-89,286	0.0	-89,286	0.0	-89,286	0.0	-89,286	0.0
10	38.2	34.7	-50,552	0.0	-85,381	0.0	-85,381	0.0	-85,381	0.0	-85,381	0.0
11	40.9	36.2	-39,118	0.0	-82,779	0.0	-82,779	0.0	-82,779	0.0	-82,779	0.0
12	43.9	37.4	-30,289	0.0	-79,737	0.0	-79,737	0.0	-79,737	0.0	-79,737	0.0
13	46.9	39.4	-24,794	0.0	-72,155	0.0	-72,155	0.0	-72,155	0.0	-72,155	0.0
14	49.7	41.4	-16,864	0.0	-64,125	0.0	-64,125	0.0	-64,125	0.0	-64,125	0.0
15	51.8	42.8	-5,725	0.0	-55,912	0.0	-55,912	0.0	-55,912	0.0	-55,912	0.0
16	53.2	43.9	0	0.0	-48,569	0.0	-48,569	0.0	-48,569	0.0	-48,569	0.0
17	53.7	44.2	0	0.0	-42,926	0.0	-42,926	0.0	-42,926	0.0	-42,926	0.0
18	53.4	44.4	0	0.0	-39,716	0.0	-39,716	0.0	-39,716	0.0	-39,716	0.0
19	52.7	44.4	0	0.0	-42,208	0.0	-42,208	0.0	-42,208	0.0	-42,208	0.0
20	51.5	45.2	-3,709	0.0	-46,008	0.0	-46,008	0.0	-46,008	0.0	-46,008	0.0
21	50.0	44.6	-27,000	0.0	-49,648	0.0	-49,648	0.0	-49,648	0.0	-49,648	0.0
22	48.1	43.3	-36,588	0.0	-54,103	0.0	-54,103	0.0	-54,103	0.0	-54,103	0.0
23	46.1	41.8	-44,813	0.0	-59,351	0.0	-59,351	0.0	-59,351	0.0	-59,351	0.0
24	43.9	40.1	-53,378	0.0	-62,848	0.0	-62,848	0.0	-62,848	0.0	-62,848	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

March			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	51.3	46.8	-15,983			0.0		0		0.0	-33,738			0.0	-33,738			0.0	-33,738			0.0
2	48.7	44.6	-24,285			0.0		0		0.0	-41,615			0.0	-41,615			0.0	-41,615			0.0
3	46.6	42.9	-31,525			0.0		0		0.0	-47,760			0.0	-47,760			0.0	-47,760			0.0
4	44.9	41.4	-38,102			0.0	-10,418			0.0	-52,513			0.0	-52,513			0.0	-52,513			0.0
5	43.9	40.8	-43,451			0.0	-57,723			0.0	-57,723			0.0	-57,723			0.0	-57,723			0.0
6	43.5	40.8	-45,738			0.0	-61,186			0.0	-61,186			0.0	-61,186			0.0	-61,186			0.0
7	44.0	41.4	-46,684			0.0	-62,149			0.0	-62,149			0.0	-62,149			0.0	-62,149			0.0
8	45.4	42.7	-33,540			0.0	-56,423			0.0	-56,423			0.0	-56,423			0.0	-56,423			0.0
9	47.7	44.3	-17,254			0.0	-50,996			0.0	-50,996			0.0	-50,996			0.0	-50,996			0.0
10	50.6	45.8	-1,968			0.0	-44,419			0.0	-44,419			0.0	-44,419			0.0	-44,419			0.0
11	53.9	47.4		0		0.0	-35,364			0.0	-35,364			0.0	-35,364			0.0	-35,364			0.0
12	57.4	49.0		0		0.0	-27,822			0.0	-27,822			0.0	-27,822			0.0	-27,822			0.0
13	60.7	50.8		0		0.0	-22,800			0.0	-22,800			0.0	-22,800			0.0	-22,800			0.0
14	63.6	52.7		0		0.0	-12,648			0.0	-12,648			0.0	-12,648			0.0	-12,648			0.0
15	65.9	53.7		0		0.0	-6,177			0.0	-6,177			0.0	-6,177			0.0	-6,177			0.0
16	67.3	54.4		0		0.0		0		0.0	0			0.0	0			0.0	0			0.0
17	67.8	54.6		0		3.8		0		0.0	0			0.0	0			0.0	0			0.0
18	67.4	54.8		0		4.6		0		0.0	0			0.0	0			0.0	0			0.0
19	66.4	55.2		0		3.1		0		0.0	0			0.0	0			0.0	0			0.0
20	64.7	56.0		0		2.2		0		0.0	0			0.0	0			0.0	0			0.0
21	62.5	56.0		0		1.1		0		0.0	0			0.0	0			0.0	0			0.0
22	60.0	54.1		0		0.0		0		0.0	0			0.0	0			0.0	0			0.0
23	57.1	51.9	-10,230			0.0	-8,267			0.0	-8,267			0.0	-8,267			0.0	-8,267			0.0
24	54.2	49.4	-913			0.0	-27,190			0.0	-27,190			0.0	-27,190			0.0	-27,190			0.0

April			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	61.0	56.5		0		0.0		-10,046		0.0		-570		0.0		-570		0.0		-570		0.0
2	58.9	54.9		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
3	57.0	53.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
4	55.4	52.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
5	54.2	51.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
6	53.5	50.9		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
7	53.2	51.1		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
8	53.9	51.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
9	55.9	52.1		0		0.0		-11,482		0.0		-17,976		0.0		-17,976		0.0		-17,976		0.0
10	58.9	53.2		0		0.0		-10,523		0.0		-10,523		0.0		-10,523		0.0		-10,523		0.0
11	62.6	55.2		0		0.0		-2,048		0.0		-2,048		0.0		-2,048		0.0		-2,048		0.0
12	66.5	57.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
13	70.2	59.6		0		2.0		0		0.0		0		0.0		0		0.0		0		0.0
14	73.2	61.0		0		5.5		0		0.0		0		0.0		0		0.0		0		0.0
15	75.2	62.2		0		6.5		0		0.0		0		0.0		0		0.0		0		0.0
16	75.9	62.2		0		7.1		0		0.0		0		0.0		0		0.0		0		0.0
17	75.6	62.0		0		7.7		0		0.0		0		0.0		0		0.0		0		0.0
18	74.9	61.7		0		7.6		0		0.0		0		0.0		0		0.0		0		0.0
19	73.7	62.0		0		6.4		0		1.1		0		1.1		0		1.1		0		1.1
20	72.1	62.4		0		5.3		0		2.0		0		2.0		0		2.0		0		2.0
21	70.2	63.3		0		4.2		0		1.5		0		1.5		0		1.5		0		1.5
22	68.0	62.5		0		3.2		0		0.8		0		0.8		0		0.8		0		0.8
23	65.7	60.5		0		2.4		0		0.3		0		0.3		0		0.3		0		0.3
24	63.4	58.5		0		1.5		-5,136		0.0		-5,136		0.0		-5,136		0.0		-5,136		0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

May			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	3.2	0	1.0	0	1.0	0	1.0	0	1.0
2	65.7	61.5	0	2.5	0	0.5	0	0.5	0	0.5	0	0.5
3	63.6	59.7	0	1.8	-2,460	0.0	-2,460	0.0	-2,460	0.0	-2,460	0.0
4	61.8	58.4	0	1.2	-9,137	0.0	-9,137	0.0	-9,137	0.0	-9,137	0.0
5	60.5	57.1	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	6.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	7.1	0	0.4	0	0.4	0	0.4	0	0.4
14	81.9	65.3	0	8.0	0	3.7	0	3.7	0	3.7	0	3.7
15	84.1	66.9	0	8.9	0	4.7	0	4.7	0	4.7	0	4.7
16	84.9	67.1	0	9.6	0	5.3	0	5.3	0	5.3	0	5.3
17	84.6	67.3	0	10.1	0	5.6	0	5.6	0	5.6	0	5.6
18	83.8	67.1	0	10.1	0	5.7	0	5.7	0	5.7	0	5.7
19	82.4	67.5	0	9.2	0	5.2	0	5.2	0	5.2	0	5.2
20	80.6	68.9	0	7.9	0	4.4	0	4.4	0	4.4	0	4.4
21	78.5	71.0	0	6.7	0	3.8	0	3.8	0	3.8	0	3.8
22	76.1	69.9	0	5.7	0	3.2	0	3.2	0	3.2	0	3.2
23	73.4	68.0	0	4.8	0	2.5	0	2.5	0	2.5	0	2.5
24	70.8	65.5	0	4.0	0	1.8	0	1.8	0	1.8	0	1.8

June			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	6.3	0	2.9	0	3.5	0	3.5	0	3.5
2	72.6	68.4	0	5.1	0	2.3	0	2.5	0	2.5	0	2.5
3	70.9	67.3	0	4.3	0	1.8	0	1.9	0	1.9	0	1.9
4	69.6	66.5	0	3.8	0	1.2	0	1.3	0	1.3	0	1.3
5	68.7	65.8	0	3.4	0	0.7	0	0.7	0	0.7	0	0.7
6	68.5	65.7	0	3.1	0	0.5	0	0.5	0	0.5	0	0.5
7	69.0	66.3	0	3.8	0	0.8	0	0.8	0	0.8	0	0.8
8	70.6	66.9	0	5.1	0	1.2	0	1.2	0	1.2	0	1.2
9	73.0	67.7	0	6.5	0	1.8	0	1.8	0	1.8	0	1.8
10	76.1	68.1	0	7.7	0	3.0	0	3.0	0	3.0	0	3.0
11	79.5	69.1	0	8.7	0	3.9	0	3.9	0	3.9	0	3.9
12	82.9	70.1	0	9.5	0	4.8	0	4.8	0	4.8	0	4.8
13	86.0	71.0	0	10.0	0	5.5	0	5.5	0	5.5	0	5.5
14	88.4	72.5	0	10.9	0	7.0	0	7.0	0	7.0	0	7.0
15	90.0	74.0	0	12.0	0	8.4	0	8.4	0	8.4	0	8.4
16	90.5	73.7	0	12.7	0	8.8	0	8.8	0	8.8	0	8.8
17	90.3	74.2	0	13.1	0	9.2	0	9.2	0	9.2	0	9.2
18	89.4	73.9	0	13.1	0	9.3	0	9.3	0	9.3	0	9.3
19	88.1	74.5	0	12.8	0	8.8	0	8.8	0	8.8	0	8.8
20	86.4	75.3	0	10.5	0	7.4	0	7.4	0	7.4	0	7.4
21	84.3	76.5	0	9.5	0	7.1	0	7.1	0	7.1	0	7.1
22	81.9	75.7	0	8.8	0	6.7	0	6.7	0	6.7	0	6.7
23	79.5	74.0	0	7.6	0	5.8	0	5.8	0	5.8	0	5.8
24	77.0	72.1	0	6.7	0	4.7	0	4.7	0	4.7	0	4.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

July			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	73.7	70.5	0	6.6		0	2.3		0	2.8		0	2.8		0	2.8	
2	72.4	69.4	0	5.4		0	2.0		0	2.2		0	2.2		0	2.2	
3	71.3	68.4	0	4.4		0	1.6		0	1.6		0	1.6		0	1.6	
4	70.5	67.7	0	3.8		0	1.0		0	1.0		0	1.0		0	1.0	
5	70.0	67.4	0	3.5		0	0.7		0	0.7		0	0.7		0	0.7	
6	69.9	67.5	0	3.2		0	0.4		0	0.4		0	0.4		0	0.4	
7	70.3	68.0	0	4.0		0	0.6		0	0.6		0	0.6		0	0.6	
8	71.7	69.0	0	5.3		0	1.3		0	1.3		0	1.3		0	1.3	
9	73.7	69.5	0	6.5		0	2.2		0	2.2		0	2.2		0	2.2	
10	76.2	70.6	0	7.6		0	3.6		0	3.6		0	3.6		0	3.6	
11	78.9	71.8	0	8.6		0	4.3		0	4.3		0	4.3		0	4.3	
12	81.4	73.0	0	9.4		0	5.2		0	5.2		0	5.2		0	5.2	
13	83.4	74.4	0	9.8		0	6.0		0	6.0		0	6.0		0	6.0	
14	84.8	74.8	0	10.7		0	6.7		0	6.7		0	6.7		0	6.7	
15	85.2	75.0	0	11.8		0	7.6		0	7.6		0	7.6		0	7.6	
16	85.1	75.0	0	12.6		0	8.2		0	8.2		0	8.2		0	8.2	
17	84.6	74.7	0	13.1		0	8.0		0	8.0		0	8.0		0	8.0	
18	83.8	74.6	0	13.0		0	8.3		0	8.3		0	8.3		0	8.3	
19	82.7	74.6	0	12.0		0	8.0		0	8.0		0	8.0		0	8.0	
20	81.4	74.4	0	10.4		0	7.0		0	7.0		0	7.0		0	7.0	
21	79.9	74.9	0	9.4		0	6.4		0	6.4		0	6.4		0	6.4	
22	78.4	74.0	0	8.4		0	5.7		0	5.7		0	5.7		0	5.7	
23	76.8	72.7	0	7.6		0	4.6		0	4.6		0	4.6		0	4.6	
24	75.2	71.6	0	6.8		0	3.8		0	3.8		0	3.8		0	3.8	

August			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	75.0	72.0	0	6.5		0	2.8		0	3.6		0	3.6		0	3.6	
2	73.2	70.3	0	5.0		0	2.4		0	2.6		0	2.6		0	2.6	
3	71.7	68.9	0	4.0		0	2.0		0	2.0		0	2.0		0	2.0	
4	70.4	67.8	0	3.6		0	1.3		0	1.3		0	1.3		0	1.3	
5	69.5	66.8	0	3.1		0	0.8		0	0.8		0	0.8		0	0.8	
6	68.9	66.4	0	2.9		0	0.4		0	0.4		0	0.4		0	0.4	
7	68.7	66.4	0	3.1		0	0.3		0	0.3		0	0.3		0	0.3	
8	69.2	66.8	0	4.4		0	0.7		0	0.7		0	0.7		0	0.7	
9	70.8	67.7	0	6.2		0	1.4		0	1.4		0	1.4		0	1.4	
10	73.2	67.7	0	7.3		0	2.3		0	2.3		0	2.3		0	2.3	
11	76.2	68.8	0	8.3		0	3.1		0	3.1		0	3.1		0	3.1	
12	79.3	70.3	0	8.9		0	3.9		0	3.9		0	3.9		0	3.9	
13	82.3	72.2	0	9.6		0	4.8		0	4.8		0	4.8		0	4.8	
14	84.7	73.7	0	10.8		0	6.0		0	6.0		0	6.0		0	6.0	
15	86.3	74.6	0	11.9		0	7.2		0	7.2		0	7.2		0	7.2	
16	86.8	75.1	0	12.7		0	8.1		0	8.1		0	8.1		0	8.1	
17	86.6	75.1	0	12.9		0	8.5		0	8.5		0	8.5		0	8.5	
18	86.0	75.3	0	12.6		0	8.9		0	8.9		0	8.9		0	8.9	
19	85.1	76.0	0	11.5		0	8.2		0	8.2		0	8.2		0	8.2	
20	83.8	76.8	0	10.1		0	7.6		0	7.6		0	7.6		0	7.6	
21	82.3	77.2	0	9.3		0	7.2		0	7.2		0	7.2		0	7.2	
22	80.6	76.3	0	8.3		0	6.5		0	6.5		0	6.5		0	6.5	
23	78.7	75.3	0	7.3		0	5.4		0	5.4		0	5.4		0	5.4	
24	76.8	73.7	0	6.4		0	4.5		0	4.5		0	4.5		0	4.5	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	3.5	0	1.0	0	1.2	0	1.2	0	1.2
2	67.6	65.0	0	2.6	0	0.5	0	0.6	0	0.6	0	0.6
3	65.8	63.4	0	2.0	-1,890	0.0	-1,890	0.0	-1,890	0.0	-1,890	0.0
4	64.3	62.2	0	1.6	-8,035	0.0	-8,035	0.0	-8,035	0.0	-8,035	0.0
5	63.1	61.1	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	6.4	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	7.6	0	3.4	0	3.4	0	3.4	0	3.4
15	83.0	70.0	0	8.8	0	4.0	0	4.0	0	4.0	0	4.0
16	83.7	70.5	0	9.6	0	4.7	0	4.7	0	4.7	0	4.7
17	83.4	70.5	0	10.0	0	5.4	0	5.4	0	5.4	0	5.4
18	82.8	70.9	0	9.4	0	5.6	0	5.6	0	5.6	0	5.6
19	81.6	72.7	0	8.2	0	5.0	0	5.0	0	5.0	0	5.0
20	80.1	74.7	0	7.4	0	4.9	0	4.9	0	4.9	0	4.9
21	78.3	74.1	0	6.4	0	4.6	0	4.6	0	4.6	0	4.6
22	76.3	72.4	0	5.3	0	3.9	0	3.9	0	3.9	0	3.9
23	74.1	70.7	0	4.4	0	2.8	0	2.8	0	2.8	0	2.8
24	71.8	68.9	0	3.8	0	1.8	0	1.8	0	1.8	0	1.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-18,207	0.0	-18,207	0.0	-18,207	0.0
2	50.1	48.6	0	0.0	0	0.0	-33,483	0.0	-33,483	0.0	-33,483	0.0
3	48.4	46.9	0	0.0	0	0.0	-39,450	0.0	-39,450	0.0	-39,450	0.0
4	47.1	45.8	0	0.0	0	0.0	-44,252	0.0	-44,252	0.0	-44,252	0.0
5	46.3	44.8	0	0.0	-28,122	0.0	-49,720	0.0	-49,720	0.0	-49,720	0.0
6	46.0	44.5	-4,477	0.0	-54,430	0.0	-54,430	0.0	-54,430	0.0	-54,430	0.0
7	46.8	45.3	-39,216	0.0	-55,044	0.0	-55,044	0.0	-55,044	0.0	-55,044	0.0
8	48.9	47.5	-27,781	0.0	-49,687	0.0	-49,687	0.0	-49,687	0.0	-49,687	0.0
9	52.2	49.9	-12,275	0.0	-41,431	0.0	-41,431	0.0	-41,431	0.0	-41,431	0.0
10	56.2	52.5	0	0.0	-34,500	0.0	-34,500	0.0	-34,500	0.0	-34,500	0.0
11	60.4	54.4	0	0.0	-24,414	0.0	-24,414	0.0	-24,414	0.0	-24,414	0.0
12	64.4	56.0	0	0.0	-16,528	0.0	-16,528	0.0	-16,528	0.0	-16,528	0.0
13	67.7	57.3	0	0.0	-9,507	0.0	-9,507	0.0	-9,507	0.0	-9,507	0.0
14	69.8	58.2	0	0.0	-907	0.0	-907	0.0	-907	0.0	-907	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	-7,128	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-17,581	0.0	0	0.0	-31,923	0.0	-31,923	0.0	-31,923	0.0
2	49.4	47.3	-33,051	0.0	0	0.0	-39,297	0.0	-39,297	0.0	-39,297	0.0
3	47.2	45.3	-39,840	0.0	0	0.0	-44,460	0.0	-44,460	0.0	-44,460	0.0
4	45.3	43.4	-45,978	0.0	-37,798	0.0	-50,859	0.0	-50,859	0.0	-50,859	0.0
5	43.9	42.2	-49,188	0.0	-56,375	0.0	-56,375	0.0	-56,375	0.0	-56,375	0.0
6	43.0	41.4	-51,007	0.0	-59,857	0.0	-59,857	0.0	-59,857	0.0	-59,857	0.0
7	42.7	41.2	-51,279	0.0	-64,246	0.0	-64,246	0.0	-64,246	0.0	-64,246	0.0
8	43.5	42.0	-46,282	0.0	-64,483	0.0	-64,483	0.0	-64,483	0.0	-64,483	0.0
9	45.9	44.0	-29,972	0.0	-56,453	0.0	-56,453	0.0	-56,453	0.0	-56,453	0.0
10	49.4	46.6	-14,709	0.0	-50,290	0.0	-50,290	0.0	-50,290	0.0	-50,290	0.0
11	53.8	48.6	0	0.0	-44,057	0.0	-44,057	0.0	-44,057	0.0	-44,057	0.0
12	58.4	50.6	0	0.0	-38,361	0.0	-38,361	0.0	-38,361	0.0	-38,361	0.0
13	62.8	52.6	0	0.0	-30,998	0.0	-30,998	0.0	-30,998	0.0	-30,998	0.0
14	66.3	54.5	0	0.0	-18,307	0.0	-18,307	0.0	-18,307	0.0	-18,307	0.0
15	68.7	55.7	0	0.0	-7,378	0.0	-7,378	0.0	-7,378	0.0	-7,378	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	1.5	-890	0.0	-890	0.0	-890	0.0	-890	0.0
20	65.0	59.4	0	0.6	-5,485	0.0	-5,485	0.0	-5,485	0.0	-5,485	0.0
21	62.8	58.2	-3,209	0.0	-9,719	0.0	-9,719	0.0	-9,719	0.0	-9,719	0.0
22	60.2	56.1	0	0.0	-15,803	0.0	-15,803	0.0	-15,803	0.0	-15,803	0.0
23	57.5	54.0	0	0.0	-20,927	0.0	-20,927	0.0	-20,927	0.0	-20,927	0.0
24	54.7	51.7	0	0.0	-26,987	0.0	-26,987	0.0	-26,987	0.0	-26,987	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-45,027	0.0	-57,545	0.0	-57,545	0.0	-57,545	0.0	-57,545	0.0
2	43.2	41.1	-51,463	0.0	-62,666	0.0	-62,666	0.0	-62,666	0.0	-62,666	0.0
3	41.8	39.8	-57,666	0.0	-67,699	0.0	-67,699	0.0	-67,699	0.0	-67,699	0.0
4	40.7	38.7	-61,450	0.0	-70,983	0.0	-70,983	0.0	-70,983	0.0	-70,983	0.0
5	40.1	38.4	-64,617	0.0	-73,869	0.0	-73,869	0.0	-73,869	0.0	-73,869	0.0
6	39.9	38.4	-66,315	0.0	-76,485	0.0	-76,485	0.0	-76,485	0.0	-76,485	0.0
7	40.5	39.0	-66,820	0.0	-79,181	0.0	-79,181	0.0	-79,181	0.0	-79,181	0.0
8	42.2	40.7	-65,967	0.0	-79,371	0.0	-79,371	0.0	-79,371	0.0	-79,371	0.0
9	44.9	43.4	-52,390	0.0	-71,341	0.0	-71,341	0.0	-71,341	0.0	-71,341	0.0
10	48.2	45.8	-37,955	0.0	-64,906	0.0	-64,906	0.0	-64,906	0.0	-64,906	0.0
11	51.7	48.3	-26,761	0.0	-57,962	0.0	-57,962	0.0	-57,962	0.0	-57,962	0.0
12	55.0	50.7	-18,297	0.0	-50,546	0.0	-50,546	0.0	-50,546	0.0	-50,546	0.0
13	57.7	52.0	-11,621	0.0	-47,042	0.0	-47,042	0.0	-47,042	0.0	-47,042	0.0
14	59.5	52.6	-2,421	0.0	-39,391	0.0	-39,391	0.0	-39,391	0.0	-39,391	0.0
15	60.1	52.7	0	0.0	-32,279	0.0	-32,279	0.0	-32,279	0.0	-32,279	0.0
16	59.9	52.6	0	0.0	-25,752	0.0	-25,752	0.0	-25,752	0.0	-25,752	0.0
17	59.2	52.1	0	0.0	-24,488	0.0	-24,488	0.0	-24,488	0.0	-24,488	0.0
18	58.2	51.8	0	0.0	-25,534	0.0	-25,534	0.0	-25,534	0.0	-25,534	0.0
19	56.8	52.2	0	0.0	-27,207	0.0	-27,207	0.0	-27,207	0.0	-27,207	0.0
20	55.0	51.4	0	0.0	-31,070	0.0	-31,070	0.0	-31,070	0.0	-31,070	0.0
21	53.1	50.1	0	0.0	-36,017	0.0	-36,017	0.0	-36,017	0.0	-36,017	0.0
22	51.0	48.1	-12,406	0.0	-40,195	0.0	-40,195	0.0	-40,195	0.0	-40,195	0.0
23	48.9	46.2	-33,842	0.0	-45,790	0.0	-45,790	0.0	-45,790	0.0	-45,790	0.0
24	46.9	44.1	-39,850	0.0	-52,149	0.0	-52,149	0.0	-52,149	0.0	-52,149	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25410 (6 BUILDINGS)

-----CARD 08-- Climatic Information-----

	Summer	Winter	Summer	Summer	Winter	Building	Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Orientation	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb		Reflect	Reflect
AUGUSTA						90		

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BACHELOR ENLISTED QUARTERS

-----CARD 20-- General Room Parameters-----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	ALL THREE FLOORS	3695		2	0		10	3		

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	102.25	9.5		200	0			
1	2	46.25	9.5		200	90			
1	3	102.25	9.5		200	180			
1	4	46.25	9.5		200	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	2	4	13	1.03	.87					
1	3	2	4	13	1.03	.87					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	Daylighting Reference Point 1	Daylighting Reference Point 2
1	16	PEOPLE	255	325	1.3	WATT-SF	INCAND				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	WASHERS	96	WATTS	FGHEAT						
1	2	DRYER	5.2	KW	FGHEAT						
1	3	REFRIG	1.6	KW	FGHEAT						
1	4	MICROWAVE	400	WATTS	FGHEAT						
1	5	COFFEE POT	1000	BTUH	FGHEAT						
1	6	TELEVISION	.3	KW	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----		-----Heating-----		-----Cooling-----		-----Heating-----		--Reheat Minimum--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----		-----Heating-----		-----Cooling-----		-----Heating-----		--Room Exhaust--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	FAN COILS SYSTEM

-----CARD 40--- System Type -----

-----OPTIONAL VENTILATION SYSTEM-----							
System Set	System	Ventil Deck	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	FC						

-----CARD 41-- Zone Assignment -----

System Set	Ref #1	Ref #2	Ref #3	Ref #4	Ref #5	Ref #6
Number	Begin	End	Begin	End	Begin	End
1	1	1				

-----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path
1											

-----CARD 48-- Cooling Capacity Overrides -----

System			Misc	-----MAIN COOLING-----				---AUX COOLING---	
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units
1			75						

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

FC (Utility file not found)

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHO FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 25412 (15 BUILDINGS)

Weather File Code:	AUGUSTA
Location:	FORT GORDON, GEORGIA
Latitude:	33.0 (deg)
Longitude:	82.0 (deg)
Time Zone:	5
Elevation:	143 (ft)
Barometric Pressure:	29.8 (in. Hg)
Summer Clearness Number:	0.90
Winter Clearness Number:	0.90
Summer Design Dry Bulb:	95 (F)
Summer Design Wet Bulb:	76 (F)
Winter Design Dry Bulb:	23 (F)
Summer Ground Relectance:	0.20
Winter Ground Relectance:	0.20
Air Density:	0.0756 (Lbm/cuft)
Air Specific Heat:	0.2444 (Btu/lbm/F)
Density-Specific Heat Prod:	1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor:	4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor:	4.5387 (Lb-min./hr/cuft)
Design Simulation Period:	April To October
System Simulation Period:	January To December
Cooling Load Methodology:	CLTD/CLF (Transfer Function Method)
Time/Date Program was Run:	19:24:54 8/16/94
Dataset Name:	FGTYP36 .TM

System 1 Block FC - FAN COIL

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>		Mo/Hr: 7/17		*		Mo/Hr: 6/18		*		Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 94/ 75/105.0		*		OADB: 96		*		OADB: 23		
				*				*				
	Space	Ret. Air	Ret. Air	Net	Percnt	*	Space	Percnt	*	Space Peak	Coil Peak	Percnt
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	32,752	0		32,752	9.71	*	36,473	13.00	*	-23,582	-23,582	7.04
Glass Solar	133,152	0		133,152	39.46	*	138,624	49.40	*	0	0	0.00
Glass Cond	33,253	0		33,253	9.86	*	38,702	13.79	*	-92,433	-92,433	27.58
Wall Cond	39,280	0		39,280	11.64	*	44,930	16.01	*	-60,534	-60,534	18.07
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	40,089			40,089	11.88	*	21,914	7.81	*	-88,892	-88,892	26.53
Sub Total==>	278,527	0		278,527	82.55	*	280,642	100.00	*	-265,441	-265,441	79.22
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	58,892	17.45	*	0	0.00	*	0	-69,644	20.78
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	278,527	0	0	337,419	100.00	*	280,642	100.00	*	-265,441	-335,085	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	22,365
Main Clg	28.1	337.4	286.6	22,365	76.2	65.1	75.6	63.7	60.4	73.9	Part	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	7,455
Totals	28.1	337.4									Wall	11,870
												1,824
												15

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--			--TEMPERATURES (F)---		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA				Type	Clg	Htg
(Mbh)	(cfm)	Deg F	Deg F	Vent	1,395	1,395	Clg Cfm/Sqft	6.2			SADB	63.7	78.7
Main Htg	-335.1	22,365	65.2	78.7	Infil	950	1,781	Clg Cfm/Ton	795.39		Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	22,365	22,365	Clg Sqft/Ton	795.39		Return	75.0	68.0
Preheat	-0.0	22,365	65.2	63.7	Mincfm	0	0	Clg Btuh/Sqft	15.09		Ret/OA	76.2	65.2
Reheat	0.0	0	0.0	0.0	Return	22,365	22,365	No. People	93		Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,395	1,395	Htg % OA	6.2		Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00		Fn BldTD	0.0	0.0
Total	-335.1				Auxil	0	0	Htg Btuh/Sqft	-14.98		Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-286,619	0.0	-179,964	0.0	-179,964	0.0	-179,964	0.0	-179,964	0.0
2	32.9	30.7	-263,006	0.0	-183,717	0.0	-183,717	0.0	-183,717	0.0	-183,717	0.0
3	33.1	31.3	-245,958	0.0	-189,757	0.0	-189,757	0.0	-189,757	0.0	-189,757	0.0
4	33.9	32.1	-233,718	0.0	-186,220	0.0	-186,220	0.0	-186,220	0.0	-186,220	0.0
5	35.2	33.5	-225,065	0.0	-191,411	0.0	-191,411	0.0	-191,411	0.0	-191,411	0.0
6	37.0	35.4	-217,680	0.0	-189,770	0.0	-189,770	0.0	-189,770	0.0	-189,770	0.0
7	39.0	37.6	-205,113	0.0	-186,175	0.0	-186,175	0.0	-186,175	0.0	-186,175	0.0
8	41.3	40.1	-182,483	0.0	-179,080	0.0	-179,080	0.0	-179,080	0.0	-179,080	0.0
9	43.7	42.5	-140,900	0.0	-157,085	0.0	-157,085	0.0	-157,085	0.0	-157,085	0.0
10	46.1	44.0	-101,450	0.0	-142,057	0.0	-142,057	0.0	-142,057	0.0	-142,057	0.0
11	48.4	45.0	-69,849	0.0	-126,575	0.0	-126,575	0.0	-126,575	0.0	-126,575	0.0
12	50.5	45.6	-51,825	0.0	-120,044	0.0	-120,044	0.0	-120,044	0.0	-120,044	0.0
13	52.2	46.1	-42,147	0.0	-111,358	0.0	-111,358	0.0	-111,358	0.0	-111,358	0.0
14	53.5	46.4	-21,716	0.0	-101,122	0.0	-101,122	0.0	-101,122	0.0	-101,122	0.0
15	54.3	46.3	0	0.0	-85,407	0.0	-85,407	0.0	-85,407	0.0	-85,407	0.0
16	54.6	46.1	0	0.0	-70,929	0.0	-70,929	0.0	-70,929	0.0	-70,929	0.0
17	54.0	45.9	0	0.0	-64,788	0.0	-64,788	0.0	-64,788	0.0	-64,788	0.0
18	52.5	45.0	0	0.0	-74,091	0.0	-74,091	0.0	-74,091	0.0	-74,091	0.0
19	50.1	44.8	0	0.0	-85,134	0.0	-85,134	0.0	-85,134	0.0	-85,134	0.0
20	47.1	43.3	-44,550	0.0	-98,047	0.0	-98,047	0.0	-98,047	0.0	-98,047	0.0
21	43.7	40.4	-77,558	0.0	-116,688	0.0	-116,688	0.0	-116,688	0.0	-116,688	0.0
22	40.4	37.3	-96,945	0.0	-137,171	0.0	-137,171	0.0	-137,171	0.0	-137,171	0.0
23	37.3	34.9	-113,286	0.0	-148,730	0.0	-148,730	0.0	-148,730	0.0	-148,730	0.0
24	34.9	32.6	-130,477	0.0	-165,434	0.0	-165,434	0.0	-165,434	0.0	-165,434	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-127,923	0.0	-139,494	0.0	-139,494	0.0	-139,494	0.0	-139,494	0.0
2	39.7	37.1	-140,570	0.0	-152,692	0.0	-152,692	0.0	-152,692	0.0	-152,692	0.0
3	37.8	35.1	-154,516	0.0	-163,839	0.0	-163,839	0.0	-163,839	0.0	-163,839	0.0
4	36.3	33.8	-163,966	0.0	-170,036	0.0	-170,036	0.0	-170,036	0.0	-170,036	0.0
5	35.1	32.6	-171,021	0.0	-184,628	0.0	-184,628	0.0	-184,628	0.0	-184,628	0.0
6	34.4	32.0	-176,107	0.0	-188,927	0.0	-188,927	0.0	-188,927	0.0	-188,927	0.0
7	34.1	31.9	-178,246	0.0	-195,641	0.0	-195,641	0.0	-195,641	0.0	-195,641	0.0
8	34.6	32.4	-164,190	0.0	-190,090	0.0	-190,090	0.0	-190,090	0.0	-190,090	0.0
9	36.0	33.8	-116,663	0.0	-170,137	0.0	-170,137	0.0	-170,137	0.0	-170,137	0.0
10	38.2	34.7	-78,560	0.0	-158,120	0.0	-158,120	0.0	-158,120	0.0	-158,120	0.0
11	40.9	36.2	-49,245	0.0	-148,092	0.0	-148,092	0.0	-148,092	0.0	-148,092	0.0
12	43.9	37.4	-33,123	0.0	-140,011	0.0	-140,011	0.0	-140,011	0.0	-140,011	0.0
13	46.9	39.4	-25,891	0.0	-130,000	0.0	-130,000	0.0	-130,000	0.0	-130,000	0.0
14	49.7	41.4	-10,374	0.0	-114,479	0.0	-114,479	0.0	-114,479	0.0	-114,479	0.0
15	51.8	42.8	0	0.0	-92,511	0.0	-92,511	0.0	-92,511	0.0	-92,511	0.0
16	53.2	43.9	0	0.0	-79,525	0.0	-79,525	0.0	-79,525	0.0	-79,525	0.0
17	53.7	44.2	0	0.0	-63,456	0.0	-63,456	0.0	-63,456	0.0	-63,456	0.0
18	53.4	44.4	0	0.0	-57,444	0.0	-57,444	0.0	-57,444	0.0	-57,444	0.0
19	52.7	44.4	0	0.0	-71,214	0.0	-71,214	0.0	-71,214	0.0	-71,214	0.0
20	51.5	45.2	0	0.0	-81,702	0.0	-81,702	0.0	-81,702	0.0	-81,702	0.0
21	50.0	44.6	0	0.0	-91,010	0.0	-91,010	0.0	-91,010	0.0	-91,010	0.0
22	48.1	43.3	-40,505	0.0	-104,721	0.0	-104,721	0.0	-104,721	0.0	-104,721	0.0
23	46.1	41.8	-95,723	0.0	-116,240	0.0	-116,240	0.0	-116,240	0.0	-116,240	0.0
24	43.9	40.1	-111,197	0.0	-127,366	0.0	-127,366	0.0	-127,366	0.0	-127,366	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-41,221	0.0	0	0.0	-69,452	0.0	-69,452	0.0	-69,452	0.0
2	48.7	44.6	-58,996	0.0	0	0.0	-87,432	0.0	-87,432	0.0	-87,432	0.0
3	46.6	42.9	-71,145	0.0	0	0.0	-99,918	0.0	-99,918	0.0	-99,918	0.0
4	44.9	41.4	-84,974	0.0	-66,971	0.0	-112,982	0.0	-112,982	0.0	-112,982	0.0
5	43.9	40.8	-92,920	0.0	-120,230	0.0	-120,230	0.0	-120,230	0.0	-120,230	0.0
6	43.5	40.8	-97,955	0.0	-127,376	0.0	-127,376	0.0	-127,376	0.0	-127,376	0.0
7	44.0	41.4	-100,160	0.0	-129,344	0.0	-129,344	0.0	-129,344	0.0	-129,344	0.0
8	45.4	42.7	-59,981	0.0	-111,538	0.0	-111,538	0.0	-111,538	0.0	-111,538	0.0
9	47.7	44.3	-13,744	0.0	-91,322	0.0	-91,322	0.0	-91,322	0.0	-91,322	0.0
10	50.6	45.8	0	0.0	-71,246	0.0	-71,246	0.0	-71,246	0.0	-71,246	0.0
11	53.9	47.4	0	0.0	-46,571	0.0	-46,571	0.0	-46,571	0.0	-46,571	0.0
12	57.4	49.0	0	0.0	-32,722	0.0	-32,722	0.0	-32,722	0.0	-32,722	0.0
13	60.7	50.8	0	0.0	-25,597	0.0	-25,597	0.0	-25,597	0.0	-25,597	0.0
14	63.6	52.7	0	0.0	-4,879	0.0	-4,879	0.0	-4,879	0.0	-4,879	0.0
15	65.9	53.7	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	11.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	7.7	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	-718	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	-13,831	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	-9,911	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	-11,531	0.0	-10,512	0.0	-10,512	0.0	-10,512	0.0
9	55.9	52.1	0	0.0	-33,156	0.0	-33,156	0.0	-33,156	0.0	-33,156	0.0
10	58.9	53.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	11.5	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	15.3	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	17.1	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	18.3	0	1.6	0	1.6	0	1.6	0	1.6
18	74.9	61.7	0	17.9	0	8.2	0	8.2	0	8.2	0	8.2
19	73.7	62.0	0	14.7	0	6.8	0	6.8	0	6.8	0	6.8
20	72.1	62.4	0	11.4	0	5.0	0	5.0	0	5.0	0	5.0
21	70.2	63.3	0	8.8	0	3.6	0	3.6	0	3.6	0	3.6
22	68.0	62.5	0	6.2	0	2.0	0	2.0	0	2.0	0	2.0
23	65.7	60.5	0	4.3	0	0.5	0	0.5	0	0.5	0	0.5
24	63.4	58.5	0	2.4	-12,406	0.0	-12,406	0.0	-12,406	0.0	-12,406	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

May			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	68.2	63.5		0		5.8		0		1.8		0		1.9		0		1.9
2	65.7	61.5		0		4.2		0		0.4		0		0.4		0		0.4
3	63.6	59.7		0		3.2	-10,795		0.0		-10,795		0.0		-10,795		0.0	
4	61.8	58.4		0		2.0		0		0.0		0		0.0		0		0.0
5	60.5	57.1		0		1.3		0		0.0		0		0.0		0		0.0
6	59.7	56.5		0		0.7		0		0.0		0		0.0		0		0.0
7	59.4	56.5		0		2.9		0		0.0		0		0.0		0		0.0
8	60.1	56.3		0		6.0		0		0.0		0		0.0		0		0.0
9	62.4	56.3		0		8.9		0		0.0		0		0.0		0		0.0
10	65.7	57.2		0		11.6		0		0.0		0		0.0		0		0.0
11	69.9	58.9		0		13.7		0		0.0		0		0.0		0		0.0
12	74.3	60.9		0		14.7		0		0.6		0		0.6		0		0.6
13	78.5	63.7		0		15.8		0		6.9		0		6.9		0		6.9
14	81.9	65.3		0		17.4		0		8.8		0		8.8		0		8.8
15	84.1	66.9		0		19.6		0		11.2		0		11.2		0		11.2
16	84.9	67.1		0		21.4		0		12.3		0		12.3		0		12.3
17	84.6	67.3		0		22.6		0		13.1		0		13.1		0		13.1
18	83.8	67.1		0		22.5		0		13.2		0		13.2		0		13.2
19	82.4	67.5		0		20.0		0		12.1		0		12.1		0		12.1
20	80.6	68.9		0		16.5		0		9.9		0		9.9		0		9.9
21	78.5	71.0		0		13.8		0		8.0		0		8.0		0		8.0
22	76.1	69.9		0		11.2		0		6.4		0		6.4		0		6.4
23	73.4	68.0		0		9.3		0		4.9		0		4.9		0		4.9
24	70.8	65.5		0		7.4		0		3.5		0		3.5		0		3.5

June	----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----					
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	74.7	70.1		0		10.9		0		5.4		0		6.5		0		6.5
2	72.6	68.4		0		9.1		0		4.0		0		4.5		0		4.5
3	70.9	67.3		0		7.7		0		2.8		0		2.9		0		2.9
4	69.6	66.5		0		6.6		0		2.0		0		2.0		0		2.0
5	68.7	65.8		0		5.8		0		0.9		0		1.0		0		1.0
6	68.5	65.7		0		5.3		0		0.4		0		0.4		0		0.4
7	69.0	66.3		0		7.6		0		1.4		0		1.4		0		1.4
8	70.6	66.9		0		11.2		0		3.1		0		3.1		0		3.1
9	73.0	67.7		0		14.9		0		4.7		0		4.7		0		4.7
10	76.1	68.1		0		17.4		0		7.8		0		8.0		0		8.0
11	79.5	69.1		0		19.4		0		9.9		0		10.1		0		10.1
12	82.9	70.1		0		20.6		0		11.2		0		11.2		0		11.2
13	86.0	71.0		0		21.2		0		12.4		0		12.4		0		12.4
14	88.4	72.5		0		22.9		0		14.9		0		14.9		0		14.9
15	90.0	74.0		0		25.4		0		18.1		0		18.1		0		18.1
16	90.5	73.7		0		27.3		0		18.9		0		18.9		0		18.9
17	90.3	74.2		0		28.1		0		19.4		0		19.4		0		19.4
18	89.4	73.9		0		28.1		0		19.7		0		19.7		0		19.7
19	88.1	74.5		0		25.9		0		18.2		0		18.2		0		18.2
20	86.4	75.3		0		21.1		0		15.1		0		15.1		0		15.1
21	84.3	76.5		0		18.5		0		13.9		0		13.9		0		13.9
22	81.9	75.7		0		16.5		0		12.8		0		12.8		0		12.8
23	79.5	74.0		0		14.0		0		10.9		0		10.9		0		10.9
24	77.0	72.1		0		12.1		0		8.4		0		8.4		0		8.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

July	----- Design -----						----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		12.0		0		4.1		0		5.0		0		5.0		0		5.0
2	72.4	69.4		0		9.6		0		3.4		0		3.9		0		3.9		0		3.9
3	71.3	68.4		0		7.8		0		2.6		0		2.7		0		2.7		0		2.7
4	70.5	67.7		0		6.8		0		1.5		0		1.5		0		1.5		0		1.5
5	70.0	67.4		0		6.1		0		0.8		0		0.8		0		0.8		0		0.8
6	69.9	67.5		0		5.6		0		0.0		0		0.0		0		0.0		0		0.0
7	70.3	68.0		0		7.8		0		1.3		0		1.3		0		1.3		0		1.3
8	71.7	69.0		0		11.4		0		3.3		0		3.3		0		3.3		0		3.3
9	73.7	69.5		0		15.0		0		5.8		0		5.8		0		5.8		0		5.8
10	76.2	70.6		0		17.3		0		8.9		0		8.9		0		8.9		0		8.9
11	78.9	71.8		0		19.0		0		10.6		0		10.6		0		10.6		0		10.6
12	81.4	73.0		0		20.1		0		12.1		0		12.1		0		12.1		0		12.1
13	83.4	74.4		0		20.8		0		12.8		0		12.8		0		12.8		0		12.8
14	84.8	74.8		0		22.1		0		14.5		0		14.5		0		14.5		0		14.5
15	85.2	75.0		0		24.8		0		16.6		0		16.6		0		16.6		0		16.6
16	85.1	75.0		0		26.4		0		17.3		0		17.3		0		17.3		0		17.3
17	84.6	74.7		0		27.9		0		17.2		0		17.2		0		17.2		0		17.2
18	83.8	74.6		0		27.2		0		17.9		0		17.9		0		17.9		0		17.9
19	82.7	74.6		0		24.9		0		16.2		0		16.2		0		16.2		0		16.2
20	81.4	74.4		0		20.9		0		13.9		0		13.9		0		13.9		0		13.9
21	79.9	74.9		0		18.5		0		12.3		0		12.3		0		12.3		0		12.3
22	78.4	74.0		0		16.0		0		10.8		0		10.8		0		10.8		0		10.8
23	76.8	72.7		0		14.2		0		8.6		0		8.6		0		8.6		0		8.6
24	75.2	71.6		0		12.2		0		7.0		0		7.0		0		7.0		0		7.0

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0		11.7		0		4.7		0		6.2		0		6.2		0		6.2
2	73.2	70.3		0		8.9		0		4.1		0		4.5		0		4.5		0		4.5
3	71.7	68.9		0		7.5		0		2.9		0		3.0		0		3.0		0		3.0
4	70.4	67.8		0		6.1		0		1.9		0		1.9		0		1.9		0		1.9
5	69.5	66.8		0		5.4		0		1.0		0		1.1		0		1.1		0		1.1
6	68.9	66.4		0		4.9		0		0.4		0		0.4		0		0.4		0		0.4
7	68.7	66.4		0		6.0		0		0.5		0		0.5		0		0.5		0		0.5
8	69.2	66.8		0		9.9		0		2.0		0		2.0		0		2.0		0		2.0
9	70.8	67.7		0		13.8		0		3.9		0		3.9		0		3.9		0		3.9
10	73.2	67.7		0		16.9		0		6.5		0		6.5		0		6.5		0		6.5
11	76.2	68.8		0		18.2		0		8.2		0		8.2		0		8.2		0		8.2
12	79.3	70.3		0		19.4		0		9.4		0		9.4		0		9.4		0		9.4
13	82.3	72.2		0		20.2		0		10.6		0		10.6		0		10.6		0		10.6
14	84.7	73.7		0		22.5		0		12.9		0		12.9		0		12.9		0		12.9
15	86.3	74.6		0		24.8		0		16.1		0		16.1		0		16.1		0		16.1
16	86.8	75.1		0		26.9		0		17.4		0		17.4		0		17.4		0		17.4
17	86.6	75.1		0		27.6		0		18.4		0		18.4		0		18.4		0		18.4
18	86.0	75.3		0		26.9		0		19.0		0		19.0		0		19.0		0		19.0
19	85.1	76.0		0		23.7		0		16.7		0		16.7		0		16.7		0		16.7
20	83.8	76.8		0		20.3		0		14.6		0		14.6		0		14.6		0		14.6
21	82.3	77.2		0		18.0		0		13.8		0		13.8		0		13.8		0		13.8
22	80.6	76.3		0		15.6		0		12.2		0		12.2		0		12.2		0		12.2
23	78.7	75.3		0		13.2		0		10.2		0		10.2		0		10.2		0		10.2
24	76.8	73.7		0		11.7		0		8.3		0		8.3		0		8.3		0		8.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	6.3	0	1.6	0	1.9	0	1.9	0	1.9
2	67.6	65.0	0	4.5	0	0.3	0	0.5	0	0.5	0	0.5
3	65.8	63.4	0	3.5	-7,946	0.0	-7,946	0.0	-7,946	0.0	-7,946	0.0
4	64.3	62.2	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	7.8	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	10.6	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	12.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	13.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	14.5	0	5.4	0	5.4	0	5.4	0	5.4
14	81.2	68.4	0	16.6	0	8.2	0	8.2	0	8.2	0	8.2
15	83.0	70.0	0	19.2	0	9.7	0	9.7	0	9.7	0	9.7
16	83.7	70.5	0	21.2	0	11.1	0	11.2	0	11.2	0	11.2
17	83.4	70.5	0	21.9	0	12.7	0	12.7	0	12.7	0	12.7
18	82.8	70.9	0	20.2	0	12.5	0	12.5	0	12.5	0	12.5
19	81.6	72.7	0	16.5	0	10.3	0	10.3	0	10.3	0	10.3
20	80.1	74.7	0	14.5	0	9.7	0	9.7	0	9.7	0	9.7
21	78.3	74.1	0	12.3	0	9.0	0	9.0	0	9.0	0	9.0
22	76.3	72.4	0	10.0	0	7.1	0	7.1	0	7.1	0	7.1
23	74.1	70.7	0	8.4	0	5.2	0	5.2	0	5.2	0	5.2
24	71.8	68.9	0	6.8	0	3.2	0	3.2	0	3.2	0	3.2

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-56,096	0.0	-56,096	0.0	-56,096	0.0
3	48.4	46.9	0	0.0	0	0.0	-83,813	0.0	-83,813	0.0	-83,813	0.0
4	47.1	45.8	0	0.0	0	0.0	-93,716	0.0	-93,716	0.0	-93,716	0.0
5	46.3	44.8	0	0.0	-104,292	0.0	-104,706	0.0	-104,706	0.0	-104,706	0.0
6	46.0	44.5	-50,047	0.0	-114,426	0.0	-114,426	0.0	-114,426	0.0	-114,426	0.0
7	46.8	45.3	-86,059	0.0	-115,649	0.0	-115,649	0.0	-115,649	0.0	-115,649	0.0
8	48.9	47.5	-50,878	0.0	-96,347	0.0	-96,347	0.0	-96,347	0.0	-96,347	0.0
9	52.2	49.9	-7,073	0.0	-71,151	0.0	-71,151	0.0	-71,151	0.0	-71,151	0.0
10	56.2	52.5	0	0.0	-51,003	0.0	-51,003	0.0	-51,003	0.0	-51,003	0.0
11	60.4	54.4	0	0.0	-29,664	0.0	-29,664	0.0	-29,664	0.0	-29,664	0.0
12	64.4	56.0	0	0.0	-15,300	0.0	-15,300	0.0	-15,300	0.0	-15,300	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	4.1	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	11.9	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	6.3	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	-934	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
FAN COILS SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	-68,927	0.0	-68,927	0.0	-68,927	0.0
2	49.4	47.3	-63,858	0.0	0	0.0	-83,805	0.0	-83,805	0.0	-83,805	0.0
3	47.2	45.3	-89,736	0.0	-9,378	0.0	-97,544	0.0	-97,544	0.0	-97,544	0.0
4	45.3	43.4	-99,056	0.0	-107,099	0.0	-107,099	0.0	-107,099	0.0	-107,099	0.0
5	43.9	42.2	-109,003	0.0	-118,009	0.0	-118,009	0.0	-118,009	0.0	-118,009	0.0
6	43.0	41.4	-109,601	0.0	-125,024	0.0	-125,024	0.0	-125,024	0.0	-125,024	0.0
7	42.7	41.2	-110,226	0.0	-130,433	0.0	-130,433	0.0	-130,433	0.0	-130,433	0.0
8	43.5	42.0	-94,172	0.0	-129,287	0.0	-129,287	0.0	-129,287	0.0	-129,287	0.0
9	45.9	44.0	-48,489	0.0	-107,497	0.0	-107,497	0.0	-107,497	0.0	-107,497	0.0
10	49.4	46.6	-8,599	0.0	-88,490	0.0	-88,490	0.0	-88,490	0.0	-88,490	0.0
11	53.8	48.6	0	0.0	-75,435	0.0	-75,435	0.0	-75,435	0.0	-75,435	0.0
12	58.4	50.6	0	0.0	-62,389	0.0	-62,389	0.0	-62,389	0.0	-62,389	0.0
13	62.8	52.6	0	0.0	-46,093	0.0	-46,093	0.0	-46,093	0.0	-46,093	0.0
14	66.3	54.5	0	0.0	-23,031	0.0	-23,031	0.0	-23,031	0.0	-23,031	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	8.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	-10,171	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	-3,417	0.0	-3,417	0.0	-3,417	0.0	-3,417	0.0
23	57.5	54.0	0	0.0	-42,919	0.0	-42,919	0.0	-42,919	0.0	-42,919	0.0
24	54.7	51.7	0	0.0	-55,537	0.0	-55,537	0.0	-55,537	0.0	-55,537	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-98,805	0.0	-119,340	0.0	-119,340	0.0	-119,340	0.0	-119,340	0.0
2	43.2	41.1	-112,140	0.0	-129,871	0.0	-129,871	0.0	-129,871	0.0	-129,871	0.0
3	41.8	39.8	-121,650	0.0	-139,853	0.0	-139,853	0.0	-139,853	0.0	-139,853	0.0
4	40.7	38.7	-129,585	0.0	-146,479	0.0	-146,479	0.0	-146,479	0.0	-146,479	0.0
5	40.1	38.4	-136,181	0.0	-152,287	0.0	-152,287	0.0	-152,287	0.0	-152,287	0.0
6	39.9	38.4	-139,727	0.0	-157,545	0.0	-157,545	0.0	-157,545	0.0	-157,545	0.0
7	40.5	39.0	-137,577	0.0	-163,048	0.0	-163,048	0.0	-163,048	0.0	-163,048	0.0
8	42.2	40.7	-132,470	0.0	-160,115	0.0	-160,115	0.0	-160,115	0.0	-160,115	0.0
9	44.9	43.4	-96,595	0.0	-135,738	0.0	-135,738	0.0	-135,738	0.0	-135,738	0.0
10	48.2	45.8	-57,572	0.0	-115,683	0.0	-115,683	0.0	-115,683	0.0	-115,683	0.0
11	51.7	48.3	-32,494	0.0	-100,494	0.0	-100,494	0.0	-100,494	0.0	-100,494	0.0
12	55.0	50.7	-17,122	0.0	-86,817	0.0	-86,817	0.0	-86,817	0.0	-86,817	0.0
13	57.7	52.0	-2,979	0.0	-78,206	0.0	-78,206	0.0	-78,206	0.0	-78,206	0.0
14	59.5	52.6	0	0.0	-62,433	0.0	-62,433	0.0	-62,433	0.0	-62,433	0.0
15	60.1	52.7	0	0.0	-50,041	0.0	-50,041	0.0	-50,041	0.0	-50,041	0.0
16	59.9	52.6	0	0.0	-34,101	0.0	-34,101	0.0	-34,101	0.0	-34,101	0.0
17	59.2	52.1	0	0.0	-32,336	0.0	-32,336	0.0	-32,336	0.0	-32,336	0.0
18	58.2	51.8	0	0.0	-41,936	0.0	-41,936	0.0	-41,936	0.0	-41,936	0.0
19	56.8	52.2	0	0.0	-50,861	0.0	-50,861	0.0	-50,861	0.0	-50,861	0.0
20	55.0	51.4	0	0.0	-60,128	0.0	-60,128	0.0	-60,128	0.0	-60,128	0.0
21	53.1	50.1	0	0.0	-70,977	0.0	-70,977	0.0	-70,977	0.0	-70,977	0.0
22	51.0	48.1	0	0.0	-83,486	0.0	-83,486	0.0	-83,486	0.0	-83,486	0.0
23	48.9	46.2	-41,381	0.0	-95,273	0.0	-95,273	0.0	-95,273	0.0	-95,273	0.0
24	46.9	44.1	-87,655	0.0	-104,991	0.0	-104,991	0.0	-104,991	0.0	-104,991	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25412 (15 BUILDINGS)

-----CARD 08-- Climatic Information -----

Weather	Summer Clearness Code	Winter Clearness Code	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA						90		

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BACHELOR ENLISTED QUATERS

-----CARD 20-- General Room Parameters -----

Room	Zone	Reference	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Number	Descrip		Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
								Resistance	Height	Multiplier	Zone	
1	1	ALL THREE FLOORS		7455		2	0		10	3		

-----CARD 21-- Thermostat Parameters -----

Room	Cooling Room	Room Design DB	Cooling T'stat RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1			50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	162	9.5		200	0			
1	2	46.25	9.5		200	90			
1	3	162	9.5		200	180			
1	4	46.25	9.5		200	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Percent Visible Air Transmittance	Inside Visible Reflectance
1	1	2	4	38	1.03	.87					
1	3	2	4	38	1.03	.87					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	31	PEOPLE	255	325	1.3	WATT-SF	INCAND				

-----CARD 28--- Miscellaneous Equipment

CHMD 20		Miscellaneous Equipment									
Room	Misc Equipment	Equipment	Energy Consump	Energy Consump	Schedule	Energy Meter	Percent of Load	Percent Misc. Load	Percent Misc. Sens	Radiant Fraction	Optional Air Path
Number	Number	Descrip	Value	Units	Code	Code	Sensible	to Room	to Ret. Air		
1	1	WASHERS	288	WATTS	FGHEAT						
1	2	DRYER	5.2	KW	FGHEAT						
1	3	REFRIG	1.6	KW	FGHEAT						
1	4	MICROWAVE	400	WATTS	FGHEAT						
1	5	COFFEE POT	1000	BTUH	FGHEAT						
1	6	TELEVISION	.3	KW	FGHEAT						

-----CARD 29--- Room Airflows

Room		Ventilation		Infiltration		Reheat Minimum	
Room Number	Value	Units	Value	Units	Value	Units	Value
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.15

-----CARD 30- Fan Airflows

Room Number	Main				Auxiliary				Room Exhaust	
	Cooling		Heating		Cooling		Heating		Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	FAN COILS SYSTEM

-----CARD 40--- System Type

System		-----OPTIONAL VENTILATION SYSTEM-----					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBvh	SADBvh	Schedule	Schedule	Pressure
1	FC						

-----CARD 41-- Zone Assignment

[illegible]

[illegible][illegible]

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

FC FAN COIL

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHO FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

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**
**          T R A C E    6 0 0    A N A L Y S I S          **
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 25423 (2 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 19:38:28 8/16/94
Dataset Name: FGTPS37 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)						Mo/Hr: 8/16	*	Mo/Hr: 6/17						*	Mo/Hr: 13/ 1						*
Outside Air ==)						OADB/WB/HR: 96/ 76/105.0	*	OADB: 98						*	OADB: 23						*
							*							*							*
	Space	Ret. Air	Ret. Air	Net	Percnt	*	Space	Percnt	*	Space Peak	Coil Peak	Percnt									
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot									
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)									
Envelope Loads																					
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00									
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00									
Roof Cond	0	66,632		66,632	21.83	*	0	0.00	*	0	-37,644	12.10									
Glass Solar	80,850	0		80,850	26.49	*	91,140	50.29	*	0	0	0.00									
Glass Cond	29,525	0		29,525	9.67	*	33,462	18.46	*	-74,494	-74,494	23.95									
Wall Cond	17,082	6,999		24,081	7.89	*	19,631	10.83	*	-38,243	-55,696	17.91									
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00									
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00									
Infiltration	31,483			31,483	10.32	*	20,290	11.20	*	-49,195	-49,195	15.82									
Sub Total==)	158,939	73,631		232,570	76.20	*	164,523	90.78	*	-161,931	-217,028	69.77									
Internal Loads						*							*							*	
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00									
People	0			0	0.00	*	0	0.00	*	0	0	0.00									
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00									
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00									
Ceiling Load	16,357	-16,357		0	0.00	*	16,709	9.22	*	-12,240	0	0.00									
Outside Air	0	0	0	79,075	25.91	*	0	0.00	*	0	-98,850	31.78									
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00									
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00									
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00									
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00									
Exhaust Heat		-6,447	0	-6,447	-2.11	*		0.00	*		4,824	-1.55									
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00									
						*							*							*	
Grand Total==)																					
	175,297	50,826	0	305,197	100.00	*	181,232	100.00	*	-174,171	-311,054	100.00									

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	17,589
Main Clg	25.4	305.2	259.4	17,589	80.0	67.9	84.0	65.7	62.9	81.9	Part	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	17,589
Totals	25.4	305.2									Wall	9,854
												1,470
												15

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	11.3	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	1,980	1,980	Clg Cfm/Sqft	1.00	SADB	65.7	76.9
Main Htg	-311.1	17,589	61.0	76.9	Infil	788	985	Clg Cfm/Ton	691.58	Plenum	77.9	65.8
Aux Htg	0.0	0	0.0	0.0	Supply	17,589	17,589	Clg Sqft/Ton	691.58	Return	77.9	65.8
Preheat	-92.2	17,589	61.0	65.7	Mincfm	0	0	Clg Btuh/Sqft	17.35	Ret/OA	80.0	61.0
Reheat	0.0	0	0.0	0.0	Return	17,589	17,589	No. People	132	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,980	1,980	Htg % OA	11.3	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0
Total	-311.1				Auxil	0	0	Htg Btuh/SqFt	-17.68	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

January			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	33.4	31.1	-230,671	0.0		-194,546	0.0		-194,546	0.0		-194,546	0.0		-194,546	0.0	
2	32.9	30.7	-218,811	0.0		-199,362	0.0		-199,362	0.0		-199,362	0.0		-199,362	0.0	
3	33.1	31.3	-210,094	0.0		-201,001	0.0		-201,001	0.0		-201,001	0.0		-201,001	0.0	
4	33.9	32.1	-204,544	0.0		-197,475	0.0		-197,475	0.0		-197,475	0.0		-197,475	0.0	
5	35.2	33.5	-199,798	0.0		-197,427	0.0		-197,427	0.0		-197,427	0.0		-197,427	0.0	
6	37.0	35.4	-193,987	0.0		-193,583	0.0		-193,583	0.0		-193,583	0.0		-193,583	0.0	
7	39.0	37.6	-188,799	0.0		-185,187	0.0		-185,187	0.0		-185,187	0.0		-185,187	0.0	
8	41.3	40.1	-181,602	0.0		-179,710	0.0		-179,710	0.0		-179,710	0.0		-179,710	0.0	
9	43.7	42.5	-155,064	0.0		-158,613	0.0		-158,613	0.0		-158,613	0.0		-158,613	0.0	
10	46.1	44.0	-97,789	0.0		-141,628	0.0		-141,628	0.0		-141,628	0.0		-141,628	0.0	
11	48.4	45.0	-65,477	0.0		-122,199	0.0		-122,199	0.0		-122,199	0.0		-122,199	0.0	
12	50.5	45.6	-39,448	0.0		-110,631	0.0		-110,631	0.0		-110,631	0.0		-110,631	0.0	
13	52.2	46.1	-24,772	0.0		-100,194	0.0		-100,194	0.0		-100,194	0.0		-100,194	0.0	
14	53.5	46.4	-9,868	0.0		-90,255	0.0		-90,255	0.0		-90,255	0.0		-90,255	0.0	
15	54.3	46.3	0	0.0		-81,796	0.0		-81,796	0.0		-81,796	0.0		-81,796	0.0	
16	54.6	46.1	0	0.0		-77,731	0.0		-77,731	0.0		-77,731	0.0		-77,731	0.0	
17	54.0	45.9	0	0.0		-79,129	0.0		-79,129	0.0		-79,129	0.0		-79,129	0.0	
18	52.5	45.0	-14,515	0.0		-93,392	0.0		-93,392	0.0		-93,392	0.0		-93,392	0.0	
19	50.1	44.8	-57,992	0.0		-109,006	0.0		-109,006	0.0		-109,006	0.0		-109,006	0.0	
20	47.1	43.3	-79,930	0.0		-124,676	0.0		-124,676	0.0		-124,676	0.0		-124,676	0.0	
21	43.7	40.4	-98,767	0.0		-140,075	0.0		-140,075	0.0		-140,075	0.0		-140,075	0.0	
22	40.4	37.3	-111,175	0.0		-158,646	0.0		-158,646	0.0		-158,646	0.0		-158,646	0.0	
23	37.3	34.9	-124,599	0.0		-171,372	0.0		-171,372	0.0		-171,372	0.0		-171,372	0.0	
24	34.9	32.6	-134,970	0.0		-184,181	0.0		-184,181	0.0		-184,181	0.0		-184,181	0.0	

February			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	41.7	38.6	-131,605	0.0		-156,018	0.0		-156,018	0.0		-156,018	0.0		-156,018	0.0	
2	39.7	37.1	-140,804	0.0		-166,640	0.0		-166,640	0.0		-166,640	0.0		-166,640	0.0	
3	37.8	35.1	-150,018	0.0		-176,334	0.0		-176,334	0.0		-176,334	0.0		-176,334	0.0	
4	36.3	33.8	-157,095	0.0		-184,132	0.0		-184,132	0.0		-184,132	0.0		-184,132	0.0	
5	35.1	32.6	-162,560	0.0		-193,250	0.0		-193,250	0.0		-193,250	0.0		-193,250	0.0	
6	34.4	32.0	-163,446	0.0		-197,768	0.0		-197,768	0.0		-197,768	0.0		-197,768	0.0	
7	34.1	31.9	-162,161	0.0		-202,780	0.0		-202,780	0.0		-202,780	0.0		-202,780	0.0	
8	34.6	32.4	-151,414	0.0		-199,703	0.0		-199,703	0.0		-199,703	0.0		-199,703	0.0	
9	36.0	33.8	-116,919	0.0		-179,946	0.0		-179,946	0.0		-179,946	0.0		-179,946	0.0	
10	38.2	34.7	-80,351	0.0		-162,477	0.0		-162,477	0.0		-162,477	0.0		-162,477	0.0	
11	40.9	36.2	-46,190	0.0		-147,623	0.0		-147,623	0.0		-147,623	0.0		-147,623	0.0	
12	43.9	37.4	-23,488	0.0		-133,666	0.0		-133,666	0.0		-133,666	0.0		-133,666	0.0	
13	46.9	39.4	-9,535	0.0		-115,760	0.0		-115,760	0.0		-115,760	0.0		-115,760	0.0	
14	49.7	41.4	0	0.0		-102,375	0.0		-102,375	0.0		-102,375	0.0		-102,375	0.0	
15	51.8	42.8	0	0.0		-85,456	0.0		-85,456	0.0		-85,456	0.0		-85,456	0.0	
16	53.2	43.9	0	0.0		-77,533	0.0		-77,533	0.0		-77,533	0.0		-77,533	0.0	
17	53.7	44.2	0	0.0		-76,190	0.0		-76,190	0.0		-76,190	0.0		-76,190	0.0	
18	53.4	44.4	0	0.0		-78,773	0.0		-78,773	0.0		-78,773	0.0		-78,773	0.0	
19	52.7	44.4	0	0.0		-95,890	0.0		-95,890	0.0		-95,890	0.0		-95,890	0.0	
20	51.5	45.2	-45,986	0.0		-104,755	0.0		-104,755	0.0		-104,755	0.0		-104,755	0.0	
21	50.0	44.6	-84,400	0.0		-114,131	0.0		-114,131	0.0		-114,131	0.0		-114,131	0.0	
22	48.1	43.3	-99,010	0.0		-125,528	0.0		-125,528	0.0		-125,528	0.0		-125,528	0.0	
23	46.1	41.8	-112,337	0.0		-133,682	0.0		-133,682	0.0		-133,682	0.0		-133,682	0.0	
24	43.9	40.1	-124,225	0.0		-145,013	0.0		-145,013	0.0		-145,013	0.0		-145,013	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

March			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	51.3	46.8	-56,176	0.0		0	0.0		-91,416	0.0		-91,416	0.0		-91,416	0.0	
2	48.7	44.6	-67,600	0.0		-41,488	0.0		-104,263	0.0		-104,263	0.0		-104,263	0.0	
3	46.6	42.9	-76,393	0.0		-116,730	0.0		-116,711	0.0		-116,711	0.0		-116,711	0.0	
4	44.9	41.4	-85,544	0.0		-126,503	0.0		-126,542	0.0		-126,542	0.0		-126,542	0.0	
5	43.9	40.8	-91,256	0.0		-132,854	0.0		-132,854	0.0		-132,854	0.0		-132,854	0.0	
6	43.5	40.8	-92,013	0.0		-139,398	0.0		-139,398	0.0		-139,398	0.0		-139,398	0.0	
7	44.0	41.4	-92,599	0.0		-138,659	0.0		-138,659	0.0		-138,659	0.0		-138,659	0.0	
8	45.4	42.7	-60,939	0.0		-122,495	0.0		-122,495	0.0		-122,495	0.0		-122,495	0.0	
9	47.7	44.3	-20,435	0.0		-100,817	0.0		-100,817	0.0		-100,817	0.0		-100,817	0.0	
10	50.6	45.8	0	0.0		-75,073	0.0		-75,073	0.0		-75,073	0.0		-75,073	0.0	
11	53.9	47.4	0	0.0		-48,239	0.0		-48,239	0.0		-48,239	0.0		-48,239	0.0	
12	57.4	49.0	0	0.0		-30,485	0.0		-30,485	0.0		-30,485	0.0		-30,485	0.0	
13	60.7	50.8	0	0.0		-15,848	0.0		-15,848	0.0		-15,848	0.0		-15,848	0.0	
14	63.6	52.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
15	65.9	53.7	0	8.9		0	0.0		0	0.0		0	0.0		0	0.0	
16	67.3	54.4	0	9.5		0	0.0		0	0.0		0	0.0		0	0.0	
17	67.8	54.6	0	9.1		0	0.0		0	0.0		0	0.0		0	0.0	
18	67.4	54.8	0	7.4		0	0.0		0	0.0		0	0.0		0	0.0	
19	66.4	55.2	0	3.6		0	0.0		0	0.0		0	0.0		0	0.0	
20	64.7	56.0	0	0.7		0	0.0		0	0.0		0	0.0		0	0.0	
21	62.5	56.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
22	60.0	54.1	0	0.0		-30,928	0.0		-30,928	0.0		-30,928	0.0		-30,928	0.0	
23	57.1	51.9	0	0.0		-60,117	0.0		-60,117	0.0		-60,117	0.0		-60,117	0.0	
24	54.2	49.4	0	0.0		-77,913	0.0		-77,913	0.0		-77,913	0.0		-77,913	0.0	

April			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	61.0	56.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
2	58.9	54.9	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
3	57.0	53.5	-3,798	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
4	55.4	52.4	-19,086	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
5	54.2	51.4	-23,013	0.0		0	0.0		-37,521	0.0		-37,521	0.0		-37,521	0.0	
6	53.5	50.9	-26,356	0.0		-66,105	0.0		-75,594	0.0		-75,594	0.0		-75,594	0.0	
7	53.2	51.1	-12,919	0.0		-72,431	0.0		-72,443	0.0		-72,443	0.0		-72,443	0.0	
8	53.9	51.5	0	0.0		-60,078	0.0		-60,084	0.0		-60,084	0.0		-60,084	0.0	
9	55.9	52.1	0	0.0		-40,536	0.0		-40,536	0.0		-40,536	0.0		-40,536	0.0	
10	58.9	53.2	0	0.0		-7,883	0.0		-7,883	0.0		-7,883	0.0		-7,883	0.0	
11	62.6	55.2	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
12	66.5	57.3	0	7.5		0	0.0		0	0.0		0	0.0		0	0.0	
13	70.2	59.6	0	12.1		0	0.0		0	0.0		0	0.0		0	0.0	
14	73.2	61.0	0	13.4		0	0.0		0	0.0		0	0.0		0	0.0	
15	75.2	62.2	0	14.6		0	0.0		0	0.0		0	0.0		0	0.0	
16	75.9	62.2	0	15.2		0	0.6		0	0.6		0	0.6		0	0.6	
17	75.6	62.0	0	14.9		0	6.2		0	6.2		0	6.2		0	6.2	
18	74.9	61.7	0	13.3		0	5.4		0	5.4		0	5.4		0	5.4	
19	73.7	62.0	0	10.0		0	3.9		0	3.9		0	3.9		0	3.9	
20	72.1	62.4	0	6.7		0	2.0		0	2.0		0	2.0		0	2.0	
21	70.2	63.3	0	4.4		0	0.8		0	0.8		0	0.8		0	0.8	
22	68.0	62.5	0	2.5		0	0.0		0	0.0		0	0.0		0	0.0	
23	65.7	60.5	0	1.3		0	0.0		0	0.0		0	0.0		0	0.0	
24	63.4	58.5	0	0.1		0	0.0		0	0.0		0	0.0		0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

May	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----					
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	68.2	63.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
2	65.7	61.5		0		0.8		0		0.0		0		0.0		0		0.0		0		0.0
3	63.6	59.7		0		1.5		0		0.0		0		0.0		0		0.0		0		0.0
4	61.8	58.4		0		0.7		0		0.0		0		0.0		0		0.0		0		0.0
5	60.5	57.1		0		0.4		0		0.0		0		0.0		0		0.0		0		0.0
6	59.7	56.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
7	59.4	56.5		0		2.1		0		0.0		0		0.0		0		0.0		0		0.0
8	60.1	56.3		0		5.0		0		0.0		0		0.0		0		0.0		0		0.0
9	62.4	56.3		0		8.1		0		0.0		0		0.0		0		0.0		0		0.0
10	65.7	57.2		0		11.2		0		0.0		0		0.0		0		0.0		0		0.0
11	69.9	58.9		0		13.7		0		0.0		0		0.0		0		0.0		0		0.0
12	74.3	60.9		0		15.6		0		0.0		0		0.0		0		0.0		0		0.0
13	78.5	63.7		0		17.1		0		2.6		0		2.6		0		2.6		0		2.6
14	81.9	65.3		0		18.6		0		9.5		0		9.5		0		9.5		0		9.5
15	84.1	66.9		0		19.9		0		11.2		0		11.2		0		11.2		0		11.2
16	84.9	67.1		0		20.2		0		11.8		0		11.8		0		11.8		0		11.8
17	84.6	67.3		0		19.9		0		11.6		0		11.6		0		11.6		0		11.6
18	83.8	67.1		0		18.4		0		11.1		0		11.1		0		11.1		0		11.1
19	82.4	67.5		0		15.8		0		9.6		0		9.6		0		9.6		0		9.6
20	80.6	68.9		0		12.0		0		7.4		0		7.4		0		7.4		0		7.4
21	78.5	71.0		0		9.3		0		6.6		0		6.6		0		6.6		0		6.6
22	76.1	69.9		0		7.3		0		5.1		0		5.1		0		5.1		0		5.1
23	73.4	68.0		0		5.7		0		3.1		0		3.1		0		3.1		0		3.1
24	70.8	65.5		0		4.4		0		1.4		0		1.4		0		1.4		0		1.4

June	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton		
1	74.7	70.1		0		9.9		0		4.5		0		5.4		0		5.4		
2	72.6	68.4		0		8.3		0		3.3		0		3.6		0		3.6		
3	70.9	67.3		0		7.2		0		1.8		0		1.9		0		1.9		
4	69.6	66.5		0		6.4		0		0.6		0		0.7		0		0.7		
5	68.7	65.8		0		5.8		0		0.0		0		0.0		0		0.0		
6	68.5	65.7		0		5.6		0		0.0		0		0.0		0		0.0		
7	69.0	66.3		0		8.0		0		0.0		0		0.0		0		0.0		
8	70.6	66.9		0		11.8		0		3.3		0		3.3		0		3.3		
9	73.0	67.7		0		14.8		0		6.3		0		6.3		0		6.3		
10	76.1	68.1		0		17.7		0		9.1		0		9.1		0		9.1		
11	79.5	69.1		0		20.0		0		11.2		0		11.2		0		11.2		
12	82.9	70.1		0		21.9		0		12.9		0		12.9		0		12.9		
13	86.0	71.0		0		23.0		0		14.3		0		14.3		0		14.3		
14	88.4	72.5		0		24.4		0		16.5		0		16.5		0		16.5		
15	90.0	74.0		0		25.4		0		18.8		0		18.8		0		18.8		
16	90.5	73.7		0		25.4		0		18.6		0		18.6		0		18.6		
17	90.3	74.2		0		25.4		0		18.8		0		18.8		0		18.8		
18	89.4	73.9		0		24.5		0		18.3		0		18.3		0		18.3		
19	88.1	74.5		0		22.4		0		16.8		0		16.8		0		16.8		
20	86.4	75.3		0		17.5		0		13.9		0		13.9		0		13.9		
21	84.3	76.5		0		15.1		0		12.4		0		12.4		0		12.4		
22	81.9	75.7		0		13.6		0		11.4		0		11.4		0		11.4		
23	79.5	74.0		0		11.9		0		9.5		0		9.5		0		9.5		
24	77.0	72.1		0		10.6		0		7.5		0		7.5		0		7.5		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		11.0		0		3.5		0		4.2		0		4.2		0		4.2
2	72.4	69.4		0		8.9		0		2.5		0		2.7		0		2.7		0		2.7
3	71.3	68.4		0		7.8		0		1.3		0		1.4		0		1.4		0		1.4
4	70.5	67.7		0		7.0		0		0.4		0		0.4		0		0.4		0		0.4
5	70.0	67.4		0		6.7		0		0.0		0		0.0		0		0.0		0		0.0
6	69.9	67.5		0		6.3		0		0.0		0		0.0		0		0.0		0		0.0
7	70.3	68.0		0		8.5		0		0.0		0		0.0		0		0.0		0		0.0
8	71.7	69.0		0		11.8		0		3.8		0		3.8		0		3.8		0		3.8
9	73.7	69.5		0		14.9		0		7.0		0		7.0		0		7.0		0		7.0
10	76.2	70.6		0		17.4		0		10.1		0		10.1		0		10.1		0		10.1
11	78.9	71.8		0		19.4		0		12.1		0		12.1		0		12.1		0		12.1
12	81.4	73.0		0		21.6		0		13.8		0		13.8		0		13.8		0		13.8
13	83.4	74.4		0		22.7		0		15.1		0		15.1		0		15.1		0		15.1
14	84.8	74.8		0		23.8		0		16.3		0		16.3		0		16.3		0		16.3
15	85.2	75.0		0		24.7		0		17.4		0		17.4		0		17.4		0		17.4
16	85.1	75.0		0		25.4		0		17.4		0		17.4		0		17.4		0		17.4
17	84.6	74.7		0		25.3		0		16.8		0		16.8		0		16.8		0		16.8
18	83.8	74.6		0		23.9		0		16.2		0		16.2		0		16.2		0		16.2
19	82.7	74.6		0		21.2		0		14.8		0		14.8		0		14.8		0		14.8
20	81.4	74.4		0		17.5		0		12.3		0		12.3		0		12.3		0		12.3
21	79.9	74.9		0		15.0		0		10.5		0		10.5		0		10.5		0		10.5
22	78.4	74.0		0		13.4		0		9.0		0		9.0		0		9.0		0		9.0
23	76.8	72.7		0		12.1		0		7.0		0		7.0		0		7.0		0		7.0
24	75.2	71.6		0		11.0		0		5.7		0		5.7		0		5.7		0		5.7

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0			0	10.5			0	4.2			0	5.2			0	5.2			0	5.2
2	73.2	70.3			0	8.4			0	3.2			0	3.6			0	3.6			0	3.6
3	71.7	68.9			0	7.3			0	2.0			0	2.1			0	2.1			0	2.1
4	70.4	67.8			0	6.5			0	0.8			0	0.9			0	0.9			0	0.9
5	69.5	66.8			0	5.7			0	0.0			0	0.0			0	0.0			0	0.0
6	68.9	66.4			0	5.6			0	0.0			0	0.0			0	0.0			0	0.0
7	68.7	66.4			0	6.7			0	0.0			0	0.0			0	0.0			0	0.0
8	69.2	66.8			0	10.1			0	0.0			0	0.0			0	0.0			0	0.0
9	70.8	67.7			0	13.6			0	4.0			0	4.0			0	4.0			0	4.0
10	73.2	67.7			0	16.6			0	7.7			0	7.7			0	7.7			0	7.7
11	76.2	68.8			0	18.9			0	9.4			0	9.4			0	9.4			0	9.4
12	79.3	70.3			0	20.7			0	11.1			0	11.1			0	11.1			0	11.1
13	82.3	72.2			0	22.2			0	13.1			0	13.1			0	13.1			0	13.1
14	84.7	73.7			0	23.7			0	15.0			0	15.0			0	15.0			0	15.0
15	86.3	74.6			0	25.0			0	16.9			0	16.9			0	16.9			0	16.9
16	86.8	75.1			0	25.4			0	17.5			0	17.5			0	17.5			0	17.5
17	86.6	75.1			0	24.6			0	17.6			0	17.6			0	17.6			0	17.6
18	86.0	75.3			0	23.0			0	17.3			0	17.3			0	17.3			0	17.3
19	85.1	76.0			0	20.0			0	15.2			0	15.2			0	15.2			0	15.2
20	83.8	76.8			0	16.5			0	13.1			0	13.1			0	13.1			0	13.1
21	82.3	77.2			0	15.0			0	12.1			0	12.1			0	12.1			0	12.1
22	80.6	76.3			0	13.0			0	10.8			0	10.8			0	10.8			0	10.8
23	78.7	75.3			0	11.4			0	9.1			0	9.1			0	9.1			0	9.1
24	76.8	73.7			0	10.4			0	7.1			0	7.1			0	7.1			0	7.1

September			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	69.6	67.4			0	5.7		0		0.0		0		0.0		0		0.0		0		0.0
2	67.6	65.0			0	4.0		0		0.0		0		0.0		0		0.0		0		0.0
3	65.8	63.4			0	2.7		0		0.0		0		0.0		0		0.0		0		0.0
4	64.3	62.2			0	1.8		0		0.0		0		0.0		0		0.0		0		0.0
5	63.1	61.1			0	1.2		0		0.0		0		0.0		0		0.0		0		0.0
6	62.4	60.3			0	1.1		0		0.0		0		0.0		0		0.0		0		0.0
7	62.2	60.2			0	1.3		0		0.0		0		0.0		0		0.0		0		0.0
8	62.9	60.9			0	3.9		0		0.0		0		0.0		0		0.0		0		0.0
9	64.7	61.8			0	7.4		0		0.0		0		0.0		0		0.0		0		0.0
10	67.6	62.1			0	10.8		0		0.0		0		0.0		0		0.0		0		0.0
11	71.1	63.1			0	13.1		0		0.0		0		0.0		0		0.0		0		0.0
12	74.8	64.6			0	14.8		0		0.0		0		0.0		0		0.0		0		0.0
13	78.3	66.7			0	16.1		0		1.8		0		1.8		0		1.8		0		1.8
14	81.2	68.4			0	17.7		0		9.4		0		9.4		0		9.4		0		9.4
15	83.0	70.0			0	19.0		0		11.0		0		11.0		0		11.0		0		11.0
16	83.7	70.5			0	19.7		0		12.0		0		12.0		0		12.0		0		12.0
17	83.4	70.5			0	18.8		0		11.8		0		11.8		0		11.8		0		11.8
18	82.8	70.9			0	16.6		0		10.9		0		10.9		0		10.9		0		10.9
19	81.6	72.7			0	13.1		0		9.0		0		9.0		0		9.0		0		9.0
20	80.1	74.7			0	11.2		0		8.0		0		8.0		0		8.0		0		8.0
21	78.3	74.1			0	9.8		0		7.0		0		7.0		0		7.0		0		7.0
22	76.3	72.4			0	7.9		0		5.7		0		5.7		0		5.7		0		5.7
23	74.1	70.7			0	6.2		0		3.7		0		3.7		0		3.7		0		3.7
24	71.8	68.9			0	5.1		0		1.7		0		1.7		0		1.7		0		1.7

October			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	52.2	50.5		0		0.0		0		0.0		-78,720		0.0		-78,720		0.0		-78,720		0.0
2	50.1	48.6		0		0.0		0		0.0		-92,217		0.0		-92,217		0.0		-92,217		0.0
3	48.4	46.9		0		0.0		-90,605		0.0		-100,362		0.0		-100,362		0.0		-100,362		0.0
4	47.1	45.8		0		0.0		-109,611		0.0		-109,656		0.0		-109,656		0.0		-109,656		0.0
5	46.3	44.8		-48,326		0.0		-116,242		0.0		-116,248		0.0		-116,248		0.0		-116,248		0.0
6	46.0	44.5		-78,396		0.0		-122,940		0.0		-122,940		0.0		-122,940		0.0		-122,940		0.0
7	46.8	45.3		-75,991		0.0		-121,368		0.0		-121,368		0.0		-121,368		0.0		-121,368		0.0
8	48.9	47.5		-49,753		0.0		-105,387		0.0		-105,387		0.0		-105,387		0.0		-105,387		0.0
9	52.2	49.9		-11,652		0.0		-79,367		0.0		-79,367		0.0		-79,367		0.0		-79,367		0.0
10	56.2	52.5		0		0.0		-52,470		0.0		-52,470		0.0		-52,470		0.0		-52,470		0.0
11	60.4	54.4		0		0.0		-26,814		0.0		-26,814		0.0		-26,814		0.0		-26,814		0.0
12	64.4	56.0		0		0.0		-4,631		0.0		-4,631		0.0		-4,631		0.0		-4,631		0.0
13	67.7	57.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
14	69.8	58.2		0		1.8		0		0.0		0		0.0		0		0.0		0		0.0
15	70.6	58.1		0		9.3		0		0.0		0		0.0		0		0.0		0		0.0
16	70.3	57.5		0		9.5		0		0.0		0		0.0		0		0.0		0		0.0
17	69.5	57.3		0		8.7		0		0.0		0		0.0		0		0.0		0		0.0
18	68.2	57.7		0		5.6		0		0.0		0		0.0		0		0.0		0		0.0
19	66.5	60.6		0		2.7		0		0.0		0		0.0		0		0.0		0		0.0
20	64.4	60.8		0		0.8		0		0.0		0		0.0		0		0.0		0		0.0
21	62.1	59.4		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
22	59.6	57.3		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
23	57.0	55.1		0		0.0		-38,568		0.0		-38,568		0.0		-38,568		0.0		-38,568		0.0
24	54.5	52.7		0		0.0		-66,895		0.0		-66,895		0.0		-66,895		0.0		-66,895		0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-68,854	0.0	0	0.0	-87,082	0.0	-87,082	0.0	-87,082	0.0
2	49.4 47.3	-79,380	0.0	-95,723	0.0	-99,387	0.0	-99,387	0.0	-99,387	0.0
3	47.2 45.3	-87,821	0.0	-112,527	0.0	-112,576	0.0	-112,576	0.0	-112,576	0.0
4	45.3 43.4	-95,030	0.0	-122,734	0.0	-122,736	0.0	-122,736	0.0	-122,736	0.0
5	43.9 42.2	-101,513	0.0	-129,769	0.0	-129,769	0.0	-129,769	0.0	-129,769	0.0
6	43.0 41.4	-100,272	0.0	-137,152	0.0	-137,152	0.0	-137,152	0.0	-137,152	0.0
7	42.7 41.2	-97,713	0.0	-141,715	0.0	-141,715	0.0	-141,715	0.0	-141,715	0.0
8	43.5 42.0	-85,017	0.0	-137,461	0.0	-137,461	0.0	-137,461	0.0	-137,461	0.0
9	45.9 44.0	-47,972	0.0	-118,328	0.0	-118,328	0.0	-118,328	0.0	-118,328	0.0
10	49.4 46.6	-11,021	0.0	-93,358	0.0	-93,358	0.0	-93,358	0.0	-93,358	0.0
11	53.8 48.6	0	0.0	-70,380	0.0	-70,380	0.0	-70,380	0.0	-70,380	0.0
12	58.4 50.6	0	0.0	-49,300	0.0	-49,300	0.0	-49,300	0.0	-49,300	0.0
13	62.8 52.6	0	0.0	-31,469	0.0	-31,469	0.0	-31,469	0.0	-31,469	0.0
14	66.3 54.5	0	0.0	-10,839	0.0	-10,839	0.0	-10,839	0.0	-10,839	0.0
15	68.7 55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	0.6	-1,558	0.0	-1,558	0.0	-1,558	0.0	-1,558	0.0
20	65.0 59.4	0	0.0	-30,106	0.0	-30,106	0.0	-30,106	0.0	-30,106	0.0
21	62.8 58.2	0	0.0	-39,409	0.0	-39,409	0.0	-39,409	0.0	-39,409	0.0
22	60.2 56.1	0	0.0	-51,564	0.0	-51,564	0.0	-51,564	0.0	-51,564	0.0
23	57.5 54.0	0	0.0	-61,302	0.0	-61,302	0.0	-61,302	0.0	-61,302	0.0
24	54.7 51.7	0	0.0	-75,435	0.0	-75,435	0.0	-75,435	0.0	-75,435	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-100,713	0.0	-132,086	0.0	-132,086	0.0	-132,086	0.0	-132,086	0.0
2	43.2 41.1	-108,974	0.0	-142,545	0.0	-142,545	0.0	-142,545	0.0	-142,545	0.0
3	41.8 39.8	-116,306	0.0	-149,375	0.0	-149,375	0.0	-149,375	0.0	-149,375	0.0
4	40.7 38.7	-122,757	0.0	-156,829	0.0	-156,829	0.0	-156,829	0.0	-156,829	0.0
5	40.1 38.4	-128,040	0.0	-162,030	0.0	-162,030	0.0	-162,030	0.0	-162,030	0.0
6	39.9 38.4	-128,179	0.0	-164,014	0.0	-164,014	0.0	-164,014	0.0	-164,014	0.0
7	40.5 39.0	-125,434	0.0	-166,298	0.0	-166,298	0.0	-166,298	0.0	-166,298	0.0
8	42.2 40.7	-120,787	0.0	-163,254	0.0	-163,254	0.0	-163,254	0.0	-163,254	0.0
9	44.9 43.4	-91,230	0.0	-142,241	0.0	-142,241	0.0	-142,241	0.0	-142,241	0.0
10	48.2 45.8	-57,328	0.0	-119,260	0.0	-119,260	0.0	-119,260	0.0	-119,260	0.0
11	51.7 48.3	-28,323	0.0	-97,444	0.0	-97,444	0.0	-97,444	0.0	-97,444	0.0
12	55.0 50.7	-5,416	0.0	-79,000	0.0	-79,000	0.0	-79,000	0.0	-79,000	0.0
13	57.7 52.0	0	0.0	-64,511	0.0	-64,511	0.0	-64,511	0.0	-64,511	0.0
14	59.5 52.6	0	0.0	-52,559	0.0	-52,559	0.0	-52,559	0.0	-52,559	0.0
15	60.1 52.7	0	0.0	-48,169	0.0	-48,169	0.0	-48,169	0.0	-48,169	0.0
16	59.9 52.6	0	0.0	-41,572	0.0	-41,572	0.0	-41,572	0.0	-41,572	0.0
17	59.2 52.1	0	0.0	-49,329	0.0	-49,329	0.0	-49,329	0.0	-49,329	0.0
18	58.2 51.8	0	0.0	-62,247	0.0	-62,247	0.0	-62,247	0.0	-62,247	0.0
19	56.8 52.2	0	0.0	-73,017	0.0	-73,017	0.0	-73,017	0.0	-73,017	0.0
20	55.0 51.4	0	0.0	-82,655	0.0	-82,655	0.0	-82,655	0.0	-82,655	0.0
21	53.1 50.1	-22,377	0.0	-92,663	0.0	-92,663	0.0	-92,663	0.0	-92,663	0.0
22	51.0 48.1	-72,211	0.0	-101,134	0.0	-101,134	0.0	-101,134	0.0	-101,134	0.0
23	48.9 46.2	-83,680	0.0	-112,924	0.0	-112,924	0.0	-112,924	0.0	-112,924	0.0
24	46.9 44.1	-94,486	0.0	-122,277	0.0	-122,277	0.0	-122,277	0.0	-122,277	0.0

01 Card - Job Information

 Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25423 (2 BUILDINGS)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR						
	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	TRAINING COMPLEX

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	ALL ONE ROOM	17589		2	4		14.5			

-----CARD 21-- Thermostat Parameters -----

Room	Cooling Room	Room Design	Cooling T'stat	Cooling T'stat	Heating Room	Heating T'stat	Heating T'stat	Heating T'stat	T'stat Location	Mass / No. Hrs	Carpet On
Number	Design DB	RH	Driftpoint	Schedule	Design DB	Driftpoint	Schedule	Flag		Average	Floor
1		50		CLGCONST				HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room	Roof	Roof	Roof	Roof	Roof	Const	Roof	Roof	Roof
Number	Number	Equal to Floor?	Length	Width	U-Value	Type	Direction	Tilt	Alpha
1	1	YES			.05	195			

-----CARD 24-- Wall Parameters -----

Room	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Ground
Number	Number	Length	Height	U-Value	Type	Direction	Tilt	Alpha	Reflectance	Multiplier
1	1	144	14.5	.15	181	0				
1	2	143	14.5	.15	181	90				
1	3	48	14.5	.15	181	180				
1	4	54	14.5	.15	181	270				
1	5	45.58	14.5	.15	181	180				
1	6	54	14.5	.15	181	90				
1	7	48	14.5	.15	181	180				
1	8	143	14.5	.15	181	270				

-----CARD 25-- Wall/Glass Parameters -----

Room	Wall	Glass	Glass	Pct Glass	Glass	Shading	External	Internal	Percent	Visible	Inside
Number	Number	Length	Width	or No. of	U-Value	Coefficient	Shading Type	Shading Type	Solar to Ret. Air	Transmittance	Visible Reflectance
1	1	5	3	34	1.03	.94					
1	2	26.4	10	1	1.03	.94					
1	4	21.6	10	1	1.03	.94					
1	6	21.6	10	1	1.03	.94					
1	8	26.4	10	1	1.03	.94					

-----CARD 26-- Schedules -----

Room	People	Lights	Ventilation	Infiltration	Reheat	Cooling	Heating	Auxiliary	Room	Daylighting
Number	FGHEAT	FGHEAT	YES	YES	Minimum	Fans	Fan	Fan	Exhaust	Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	132	PEOPLE	255	325	1.4	WATT-SF	ASHRAE2				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	18.9	KW	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	SINGLE ZONE SYSTEMS

-----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						Fan Static Pressure
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule		
1	SZ							

-----CARD 41-- Zone Assignment -----

System Set Number	Ref #1 Begin End	Ref #2 Begin End	Ref #3 Begin End	Ref #4 Begin End	Ref #5 Begin End	Ref #6 Begin End
1	1 1					

-----CARD 42--- Fan SP and Duct Parameters-----

[illegible]

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHED FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

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PAGE 1

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**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by              **  
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 25424 (2 BUILDINGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 19:55:43 8/16/94
Dataset Name: FGTYP38 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>					Mo/Hr: 8/16		*	Mo/Hr: 9/16		*	Mo/Hr: 13/ 1		
Outside Air ==>					OADB/WB/HR: 96/ 76/105.0		*	OADB: 93		*	OADB: 23		
							*			*			
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct	
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot	
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)	
Envelope Loads						*			*				
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00	
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00	
Roof Cond	36,006	0		36,006	21.49	*	30,869	22.07	*	-20,640	-20,640	13.49	
Glass Solar	39,600	0		39,600	23.63	*	57,600	41.18	*	0	0	0.00	
Glass Cond	12,051	0		12,051	7.19	*	9,888	7.07	*	-30,406	-30,406	19.87	
Wall Cond	34,903	0		34,903	20.83	*	35,251	25.20	*	-52,180	-52,180	34.10	
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00	
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00	
Infiltration	15,581			15,581	9.30	*	6,276	4.49	*	-19,832	-19,832	12.96	
Sub Total==>	138,141	0		138,141	82.44	*	139,883	100.00	*	-123,059	-123,059	80.42	
Internal Loads						*			*				
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00	
People	0			0	0.00	*	0	0.00	*	0	0	0.00	
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00	
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00	
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00	
Outside Air	0	0	0	29,416	17.56	*	0	0.00	*	0	-29,955	19.58	
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00	
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00	
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00	
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00	
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00	
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00	
						*			*				
Grand Total==>	138,141	0	0	167,557	100.00	*	139,883	100.00	*	-123,059	-153,013	100.00	

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	9,021
Main Clg	14.0	167.6	144.0	9,021	76.4	64.2	70.7	61.0	58.2	68.6	Part	3,048
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	9,021
Totals	14.0	167.6									Wall	3,972
												600 15

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	6.7	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	600	600	Clg Cfm/Sqft	1.00	SADB	61.0	80.3
Main Htg	-153.0	9,021	65.0	80.3	Infil	318	397	Clg Cfm/Ton	646.03	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	9,021	9,021	Clg Sqft/Ton	646.03	Return	75.0	68.0
Preheat	-0.0	9,021	65.0	61.0	Mincfm	0	0	Clg Btuh/Sqft	18.57	Ret/OA	76.4	65.0
Reheat	0.0	0	0.0	0.0	Return	9,021	9,021	No. People	40	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	600	600	Htg % OA	6.7	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-153.0				Auxil	0	0	Htg Btuh/Sqft	-16.96	Fn Frict	0.0	0.0

System 2 Block UH - UNIT HEATERS

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)					Mo/Hr: 0/ 0		Mo/Hr: 0/ 0		Mo/Hr: 13/ 1		
Outside Air ==)					OADB/WB/HR: 0/ 0/ 0.0		OADB: 0		OADB: 23		
	Space	Ret. Air	Ret. Air	Net	Perct		Space	Perct	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot		Sensible	Of Tot	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)		(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Envelope Loads											
Skylite Solr	0	0		0	0.00		0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00		0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00		0	0.00	-33,471	-33,471	24.56
Glass Solar	0	0		0	0.00		0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00		0	0.00	0	0	0.00
Wall Cond	0	0		0	0.00		0	0.00	-70,360	-70,360	51.63
Partition	0			0	0.00		0	0.00	0	0	0.00
Exposed Floor	0			0	0.00		0	0.00	0	0	0.00
Infiltration	0			0	0.00		0	0.00	-22,703	-22,703	16.66
Sub Total==)	0	0		0	0.00		0	0.00	-126,534	-126,534	92.86
Internal Loads											
Lights	0	0		0	0.00		0	0.00	0	0	0.00
People	0			0	0.00		0	0.00	0	0	0.00
Misc	0	0	0	0	0.00		0	0.00	0	0	0.00
Sub Total==)	0	0	0	0	0.00		0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00		0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00		0	0.00	0	-9,735	7.14
Sup. Fan Heat				0	0.00			0.00		0	0.00
Ret. Fan Heat		0		0	0.00			0.00		0	0.00
Duct Heat Pkup		0		0	0.00			0.00		0	0.00
OV/UNDR Sizing	0			0	0.00		0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00			0.00		0	0.00
Terminal Bypass		0	0	0	0.00			0.00		0	0.00
Grand Total==)	0	0	0	0	0.00		0	0.00	-126,534	-136,269	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	14,628	
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	3,048	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	14,628	0 0
Totals	0.0	0.0								Wall	4,548	0 0

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	0.0	Type	Clg	Htg
					Vent	0	195	Clg Cfm/Sqft	0.00	SADB	0.0	75.8
Main Htg	-136.3	14,628	67.4	75.8	Infil	0	455	Clg Cfm/Ton	0.00	Plenum	0.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	0	14,628	Clg Sqft/Ton	0.00	Return	0.0	68.0
Preheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	0.00	Ret/OA	0.0	67.4
Reheat	0.0	0	0.0	0.0	Return	0	14,628	No. People	0	Runarnd	0.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	0	195	Htg % OA	1.3	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0
Total	-136.3				Auxil	0	0	Htg Btuh/SqFt	-9.32	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-245,805	0.0	-17,842	0.0	-75,802	0.0	-75,802	0.0	-75,802	0.0
2	32.9	30.7	-203,794	0.0	-80,635	0.0	-80,635	0.0	-80,635	0.0	-80,635	0.0
3	33.1	31.3	-103,166	0.0	-85,141	0.0	-85,141	0.0	-85,141	0.0	-85,141	0.0
4	33.9	32.1	-64,289	0.0	-87,568	0.0	-87,568	0.0	-87,568	0.0	-87,568	0.0
5	35.2	33.5	-69,458	0.0	-90,960	0.0	-90,960	0.0	-90,960	0.0	-90,960	0.0
6	37.0	35.4	-73,057	0.0	-90,164	0.0	-90,164	0.0	-90,164	0.0	-90,164	0.0
7	39.0	37.6	-72,669	0.0	-88,457	0.0	-88,457	0.0	-88,457	0.0	-88,457	0.0
8	41.3	40.1	-74,383	0.0	-86,993	0.0	-86,993	0.0	-86,993	0.0	-86,993	0.0
9	43.7	42.5	-60,835	0.0	-78,131	0.0	-78,131	0.0	-78,131	0.0	-78,131	0.0
10	46.1	44.0	-37,590	0.0	-68,612	0.0	-68,612	0.0	-68,612	0.0	-68,612	0.0
11	48.4	45.0	-11,842	0.0	-51,112	0.0	-51,112	0.0	-51,112	0.0	-51,112	0.0
12	50.5	45.6	0	0.0	-35,006	0.0	-35,006	0.0	-35,006	0.0	-35,006	0.0
13	52.2	46.1	0	0.0	-19,265	0.0	-19,265	0.0	-19,265	0.0	-19,265	0.0
14	53.5	46.4	0	0.0	-8,330	0.0	-8,330	0.0	-8,330	0.0	-8,330	0.0
15	54.3	46.3	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
16	54.6	46.1	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
17	54.0	45.9	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
18	52.5	45.0	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
19	50.1	44.8	0	1.9	-4,886	0.0	-4,886	0.0	-4,886	0.0	-4,886	0.0
20	47.1	43.3	0	0.4	-25,590	0.0	-25,590	0.0	-25,590	0.0	-25,590	0.0
21	43.7	40.4	0	0.0	-36,486	0.0	-36,486	0.0	-36,486	0.0	-36,486	0.0
22	40.4	37.3	0	0.0	-49,467	0.0	-49,467	0.0	-49,467	0.0	-49,467	0.0
23	37.3	34.9	0	0.0	-57,595	0.0	-57,595	0.0	-57,595	0.0	-57,595	0.0
24	34.9	32.6	0	0.0	-68,772	0.0	-68,772	0.0	-68,772	0.0	-68,772	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-38,141	0.0	0	0.0	-59,795	0.0	-59,795	0.0	-59,795	0.0
2	39.7	37.1	-48,256	0.0	-61,382	0.0	-66,143	0.0	-66,143	0.0	-66,143	0.0
3	37.8	35.1	-54,137	0.0	-72,450	0.0	-72,450	0.0	-72,450	0.0	-72,450	0.0
4	36.3	33.8	-59,917	0.0	-77,517	0.0	-77,517	0.0	-77,517	0.0	-77,517	0.0
5	35.1	32.6	-64,519	0.0	-83,540	0.0	-83,540	0.0	-83,540	0.0	-83,540	0.0
6	34.4	32.0	-68,232	0.0	-87,741	0.0	-87,741	0.0	-87,741	0.0	-87,741	0.0
7	34.1	31.9	-71,094	0.0	-92,169	0.0	-92,169	0.0	-92,169	0.0	-92,169	0.0
8	34.6	32.4	-68,513	0.0	-94,536	0.0	-94,536	0.0	-94,536	0.0	-94,536	0.0
9	36.0	33.8	-56,103	0.0	-87,527	0.0	-87,527	0.0	-87,527	0.0	-87,527	0.0
10	38.2	34.7	-37,241	0.0	-78,161	0.0	-78,161	0.0	-78,161	0.0	-78,161	0.0
11	40.9	36.2	-10,053	0.0	-63,039	0.0	-63,039	0.0	-63,039	0.0	-63,039	0.0
12	43.9	37.4	0	0.0	-47,866	0.0	-47,866	0.0	-47,866	0.0	-47,866	0.0
13	46.9	39.4	0	0.0	-29,549	0.0	-29,549	0.0	-29,549	0.0	-29,549	0.0
14	49.7	41.4	0	0.0	-15,104	0.0	-15,104	0.0	-15,104	0.0	-15,104	0.0
15	51.8	42.8	0	0.8	-2,764	0.0	-2,764	0.0	-2,764	0.0	-2,764	0.0
16	53.2	43.9	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
17	53.7	44.2	0	5.3	0	0.0	0	0.0	0	0.0	0	0.0
18	53.4	44.4	0	4.1	-4,762	0.0	-4,762	0.0	-4,762	0.0	-4,762	0.0
19	52.7	44.4	0	2.3	-13,303	0.0	-13,303	0.0	-13,303	0.0	-13,303	0.0
20	51.5	45.2	0	0.6	-21,819	0.0	-21,819	0.0	-21,819	0.0	-21,819	0.0
21	50.0	44.6	0	0.0	-31,078	0.0	-31,078	0.0	-31,078	0.0	-31,078	0.0
22	48.1	43.3	0	0.0	-40,108	0.0	-40,108	0.0	-40,108	0.0	-40,108	0.0
23	46.1	41.8	0	0.0	-45,287	0.0	-45,287	0.0	-45,287	0.0	-45,287	0.0
24	43.9	40.1	0	0.0	-52,258	0.0	-52,258	0.0	-52,258	0.0	-52,258	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-7,704	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	48.7 44.6	-14,917	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	46.6 42.9	-21,005	0.0	0	0.0	-24,352	0.0	-24,352	0.0	-24,352	0.0
4	44.9 41.4	-29,390	0.0	-26,366	0.0	-50,867	0.0	-50,867	0.0	-50,867	0.0
5	43.9 40.8	-34,208	0.0	-55,646	0.0	-55,646	0.0	-55,646	0.0	-55,646	0.0
6	43.5 40.8	-37,612	0.0	-60,152	0.0	-60,152	0.0	-60,152	0.0	-60,152	0.0
7	44.0 41.4	-37,412	0.0	-60,605	0.0	-60,605	0.0	-60,605	0.0	-60,605	0.0
8	45.4 42.7	-35,802	0.0	-61,693	0.0	-61,693	0.0	-61,693	0.0	-61,693	0.0
9	47.7 44.3	-21,190	0.0	-55,493	0.0	-55,493	0.0	-55,493	0.0	-55,493	0.0
10	50.6 45.8	-3,554	0.0	-44,661	0.0	-44,661	0.0	-44,661	0.0	-44,661	0.0
11	53.9 47.4	0	0.0	-25,189	0.0	-25,189	0.0	-25,189	0.0	-25,189	0.0
12	57.4 49.0	0	0.0	-3,163	0.0	-3,163	0.0	-3,163	0.0	-3,163	0.0
13	60.7 50.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	63.6 52.7	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9 53.7	0	7.7	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	6.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	5.2	0	0.6	0	0.6	0	0.6	0	0.6
20	64.7 56.0	0	3.5	0	0.2	0	0.2	0	0.2	0	0.2
21	62.5 56.0	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1 51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2 49.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2 51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5 50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2 51.1	0	0.0	-25,057	0.0	-30,753	0.0	-30,753	0.0	-30,753	0.0
8	53.9 51.5	0	0.0	-33,589	0.0	-33,589	0.0	-33,589	0.0	-33,589	0.0
9	55.9 52.1	0	0.0	-28,919	0.0	-28,919	0.0	-28,919	0.0	-28,919	0.0
10	58.9 53.2	0	0.0	-17,272	0.0	-17,272	0.0	-17,272	0.0	-17,272	0.0
11	62.6 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5 57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	7.7	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	8.4	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	8.8	0	1.9	0	1.9	0	1.9	0	1.9
17	75.6 62.0	0	8.5	0	3.7	0	3.7	0	3.7	0	3.7
18	74.9 61.7	0	7.7	0	3.3	0	3.3	0	3.3	0	3.3
19	73.7 62.0	0	6.5	0	2.8	0	2.8	0	2.8	0	2.8
20	72.1 62.4	0	4.9	0	1.8	0	1.8	0	1.8	0	1.8
21	70.2 63.3	0	3.6	0	1.2	0	1.2	0	1.2	0	1.2
22	68.0 62.5	0	2.6	0	0.4	0	0.4	0	0.4	0	0.4
23	65.7 60.5	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	1.6	0	0.3	0	0.4	0	0.4	0	0.4
2	65.7	61.5	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	8.9	0	1.1	0	1.1	0	1.1	0	1.1
15	84.1	66.9	0	9.7	0	5.3	0	5.3	0	5.3	0	5.3
16	84.9	67.1	0	9.9	0	5.6	0	5.6	0	5.6	0	5.6
17	84.6	67.3	0	9.8	0	5.7	0	5.7	0	5.7	0	5.7
18	83.8	67.1	0	9.3	0	5.5	0	5.5	0	5.5	0	5.5
19	82.4	67.5	0	8.0	0	5.1	0	5.1	0	5.1	0	5.1
20	80.6	68.9	0	6.8	0	4.4	0	4.4	0	4.4	0	4.4
21	78.5	71.0	0	5.5	0	3.6	0	3.6	0	3.6	0	3.6
22	76.1	69.9	0	4.5	0	3.0	0	3.0	0	3.0	0	3.0
23	73.4	68.0	0	3.7	0	2.1	0	2.1	0	2.1	0	2.1
24	70.8	65.5	0	2.9	0	1.2	0	1.2	0	1.2	0	1.2

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	5.5	0	2.6	0	3.1	0	3.1	0	3.1
2	72.6	68.4	0	4.6	0	2.1	0	2.3	0	2.3	0	2.3
3	70.9	67.3	0	4.0	0	1.5	0	1.5	0	1.5	0	1.5
4	69.6	66.5	0	3.5	0	0.8	0	0.9	0	0.9	0	0.9
5	68.7	65.8	0	3.1	0	0.3	0	0.3	0	0.3	0	0.3
6	68.5	65.7	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	4.8	0	0.5	0	0.5	0	0.5	0	0.5
10	76.1	68.1	0	6.1	0	2.6	0	2.6	0	2.6	0	2.6
11	79.5	69.1	0	7.6	0	4.1	0	4.1	0	4.1	0	4.1
12	82.9	70.1	0	8.9	0	5.3	0	5.3	0	5.3	0	5.3
13	86.0	71.0	0	10.4	0	6.4	0	6.4	0	6.4	0	6.4
14	88.4	72.5	0	11.3	0	7.5	0	7.5	0	7.5	0	7.5
15	90.0	74.0	0	12.3	0	8.7	0	8.7	0	8.7	0	8.7
16	90.5	73.7	0	12.6	0	8.8	0	8.8	0	8.8	0	8.8
17	90.3	74.2	0	12.5	0	8.7	0	8.7	0	8.7	0	8.7
18	89.4	73.9	0	12.0	0	8.6	0	8.6	0	8.6	0	8.6
19	88.1	74.5	0	10.9	0	8.0	0	8.0	0	8.0	0	8.0
20	86.4	75.3	0	9.4	0	7.0	0	7.0	0	7.0	0	7.0
21	84.3	76.5	0	8.2	0	6.4	0	6.4	0	6.4	0	6.4
22	81.9	75.7	0	7.5	0	5.6	0	5.6	0	5.6	0	5.6
23	79.5	74.0	0	6.6	0	4.7	0	4.7	0	4.7	0	4.7
24	77.0	72.1	0	5.9	0	3.7	0	3.7	0	3.7	0	3.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	5.8	0	2.0	0	2.3	0	2.3	0	2.3
2	72.4	69.4	0	4.7	0	1.5	0	1.6	0	1.6	0	1.6
3	71.3	68.4	0	4.1	0	1.2	0	1.3	0	1.3	0	1.3
4	70.5	67.7	0	3.6	0	0.6	0	0.6	0	0.6	0	0.6
5	70.0	67.4	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	4.1	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	4.9	0	0.6	0	0.6	0	0.6	0	0.6
10	76.2	70.6	0	5.9	0	3.0	0	3.0	0	3.0	0	3.0
11	78.9	71.8	0	7.3	0	4.6	0	4.6	0	4.6	0	4.6
12	81.4	73.0	0	9.2	0	6.0	0	6.0	0	6.0	0	6.0
13	83.4	74.4	0	10.5	0	7.1	0	7.1	0	7.1	0	7.1
14	84.8	74.8	0	11.4	0	7.9	0	7.9	0	7.9	0	7.9
15	85.2	75.0	0	12.1	0	8.5	0	8.5	0	8.5	0	8.5
16	85.1	75.0	0	12.4	0	8.6	0	8.6	0	8.6	0	8.6
17	84.6	74.7	0	12.4	0	8.3	0	8.3	0	8.3	0	8.3
18	83.8	74.6	0	11.7	0	7.8	0	7.8	0	7.8	0	7.8
19	82.7	74.6	0	10.7	0	7.5	0	7.5	0	7.5	0	7.5
20	81.4	74.4	0	9.4	0	6.3	0	6.3	0	6.3	0	6.3
21	79.9	74.9	0	8.2	0	5.6	0	5.6	0	5.6	0	5.6
22	78.4	74.0	0	7.1	0	4.6	0	4.6	0	4.6	0	4.6
23	76.8	72.7	0	6.6	0	4.0	0	4.0	0	4.0	0	4.0
24	75.2	71.6	0	5.9	0	3.1	0	3.1	0	3.1	0	3.1

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	6.2	0	2.8	0	3.3	0	3.3	0	3.3
2	73.2	70.3	0	4.9	0	2.3	0	2.5	0	2.5	0	2.5
3	71.7	68.9	0	4.3	0	1.7	0	1.8	0	1.8	0	1.8
4	70.4	67.8	0	3.8	0	1.0	0	1.1	0	1.1	0	1.1
5	69.5	66.8	0	3.3	0	0.4	0	0.4	0	0.4	0	0.4
6	68.9	66.4	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	6.0	0	2.1	0	2.1	0	2.1	0	2.1
11	76.2	68.8	0	8.0	0	3.9	0	3.9	0	3.9	0	3.9
12	79.3	70.3	0	9.6	0	5.8	0	5.8	0	5.8	0	5.8
13	82.3	72.2	0	11.4	0	7.1	0	7.1	0	7.1	0	7.1
14	84.7	73.7	0	12.6	0	8.1	0	8.1	0	8.1	0	8.1
15	86.3	74.6	0	13.6	0	9.3	0	9.3	0	9.3	0	9.3
16	86.8	75.1	0	13.8	0	9.5	0	9.5	0	9.5	0	9.5
17	86.6	75.1	0	13.4	0	9.4	0	9.4	0	9.4	0	9.4
18	86.0	75.3	0	12.5	0	9.1	0	9.1	0	9.1	0	9.1
19	85.1	76.0	0	11.2	0	8.4	0	8.4	0	8.4	0	8.4
20	83.8	76.8	0	9.9	0	7.2	0	7.2	0	7.2	0	7.2
21	82.3	77.2	0	8.8	0	6.7	0	6.7	0	6.7	0	6.7
22	80.6	76.3	0	7.8	0	5.8	0	5.8	0	5.8	0	5.8
23	78.7	75.3	0	6.8	0	4.8	0	4.8	0	4.8	0	4.8
24	76.8	73.7	0	6.1	0	4.2	0	4.2	0	4.2	0	4.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

September			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	69.6	67.4		0	4.7		0	1.2		0	1.5		0	1.5		0	1.5		0	1.5		1.5
2	67.6	65.0		0	3.3		0	0.5		0	0.6		0	0.6		0	0.6		0	0.6		0.6
3	65.8	63.4		0	2.5		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
4	64.3	62.2		0	1.9		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
5	63.1	61.1		0	1.4		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
6	62.4	60.3		0	1.1		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
7	62.2	60.2		0	1.1		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
8	62.9	60.9		0	1.3		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
9	64.7	61.8		0	2.8		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
10	67.6	62.1		0	4.6		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
11	71.1	63.1		0	6.8		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0		0.0
12	74.8	64.6		0	8.8		0	0.2		0	0.2		0	0.2		0	0.2		0	0.2		0.2
13	78.3	66.7		0	10.7		0	6.5		0	6.5		0	6.5		0	6.5		0	6.5		6.5
14	81.2	68.4		0	12.3		0	7.7		0	7.7		0	7.7		0	7.7		0	7.7		7.7
15	83.0	70.0		0	13.3		0	8.3		0	8.3		0	8.3		0	8.3		0	8.3		8.3
16	83.7	70.5		0	13.4		0	8.5		0	8.5		0	8.5		0	8.5		0	8.5		8.5
17	83.4	70.5		0	12.8		0	8.3		0	8.3		0	8.3		0	8.3		0	8.3		8.3
18	82.8	70.9		0	11.6		0	7.8		0	7.8		0	7.8		0	7.8		0	7.8		7.8
19	81.6	72.7		0	10.1		0	6.9		0	6.9		0	6.9		0	6.9		0	6.9		6.9
20	80.1	74.7		0	8.8		0	6.2		0	6.2		0	6.2		0	6.2		0	6.2		6.2
21	78.3	74.1		0	7.7		0	5.3		0	5.3		0	5.3		0	5.3		0	5.3		5.3
22	76.3	72.4		0	6.5		0	4.3		0	4.3		0	4.3		0	4.3		0	4.3		4.3
23	74.1	70.7		0	5.2		0	3.3		0	3.3		0	3.3		0	3.3		0	3.3		3.3
24	71.8	68.9		0	4.4		0	2.4		0	2.4		0	2.4		0	2.4		0	2.4		2.4

October			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	52.2	50.5	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
2	50.1	48.6	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
3	48.4	46.9	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
4	47.1	45.8	0	0.0			0	0.0			-22,654	0.0			-22,654	0.0			-22,654	0.0		
5	46.3	44.8	0	0.0			-36,392	0.0			-47,260	0.0			-47,260	0.0			-47,260	0.0		
6	46.0	44.5	0	0.0			-51,955	0.0			-51,955	0.0			-51,955	0.0			-51,955	0.0		
7	46.8	45.3	-4,852	0.0			-51,772	0.0			-51,772	0.0			-51,772	0.0			-51,772	0.0		
8	48.9	47.5	-22,974	0.0			-50,087	0.0			-50,087	0.0			-50,087	0.0			-50,087	0.0		
9	52.2	49.9	-7,458	0.0			-40,279	0.0			-40,279	0.0			-40,279	0.0			-40,279	0.0		
10	56.2	52.5	0	0.0			-24,183	0.0			-24,183	0.0			-24,183	0.0			-24,183	0.0		
11	60.4	54.4	0	0.0			-1,181	0.0			-1,181	0.0			-1,181	0.0			-1,181	0.0		
12	64.4	56.0	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
13	67.7	57.3	0	3.9			0	0.0			0	0.0			0	0.0			0	0.0		
14	69.8	58.2	0	8.5			0	0.0			0	0.0			0	0.0			0	0.0		
15	70.6	58.1	0	9.7			0	0.0			0	0.0			0	0.0			0	0.0		
16	70.3	57.5	0	9.8			0	3.0			0	3.0			0	3.0			0	3.0		
17	69.5	57.3	0	9.3			0	3.7			0	3.7			0	3.7			0	3.7		
18	68.2	57.7	0	7.4			0	2.8			0	2.8			0	2.8			0	2.8		
19	66.5	60.6	0	5.8			0	1.9			0	1.9			0	1.9			0	1.9		
20	64.4	60.8	0	4.3			0	0.9			0	0.9			0	0.9			0	0.9		
21	62.1	59.4	0	2.8			0	0.3			0	0.3			0	0.3			0	0.3		
22	59.6	57.3	0	1.8			0	0.0			0	0.0			0	0.0			0	0.0		
23	57.0	55.1	0	0.7			0	0.0			0	0.0			0	0.0			0	0.0		
24	54.5	52.7	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
SINGLE ZONE SYSTEMS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	49.4	47.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	47.2	45.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	45.3	43.4	0	0.0	-6,893	0.0	-37,870	0.0	-37,870	0.0	-37,870	0.0
5	43.9	42.2	-9,760	0.0	-52,217	0.0	-52,217	0.0	-52,217	0.0	-52,217	0.0
6	43.0	41.4	-35,652	0.0	-57,121	0.0	-57,121	0.0	-57,121	0.0	-57,121	0.0
7	42.7	41.2	-38,115	0.0	-60,942	0.0	-60,942	0.0	-60,942	0.0	-60,942	0.0
8	43.5	42.0	-33,587	0.0	-59,897	0.0	-59,897	0.0	-59,897	0.0	-59,897	0.0
9	45.9	44.0	-15,817	0.0	-53,015	0.0	-53,015	0.0	-53,015	0.0	-53,015	0.0
10	49.4	46.6	0	0.0	-36,931	0.0	-36,931	0.0	-36,931	0.0	-36,931	0.0
11	53.8	48.6	0	0.0	-19,273	0.0	-19,273	0.0	-19,273	0.0	-19,273	0.0
12	58.4	50.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	62.8	52.6	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
14	66.3	54.5	0	8.3	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	9.5	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	8.8	0	1.2	0	1.2	0	1.2	0	1.2
18	68.3	57.0	0	6.8	0	2.2	0	2.2	0	2.2	0	2.2
19	66.9	59.4	0	5.2	0	1.4	0	1.4	0	1.4	0	1.4
20	65.0	59.4	0	3.7	0	0.5	0	0.5	0	0.5	0	0.5
21	62.8	58.2	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7	51.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	0	0.0	0	0.0	-45,081	0.0	-45,081	0.0	-45,081	0.0
2	43.2	41.1	0	0.0	0	0.0	-54,237	0.0	-54,237	0.0	-54,237	0.0
3	41.8	39.8	0	0.0	-50,854	0.0	-59,603	0.0	-59,603	0.0	-59,603	0.0
4	40.7	38.7	-33,269	0.0	-64,704	0.0	-64,704	0.0	-64,704	0.0	-64,704	0.0
5	40.1	38.4	-47,954	0.0	-68,891	0.0	-68,891	0.0	-68,891	0.0	-68,891	0.0
6	39.9	38.4	-48,821	0.0	-70,511	0.0	-70,511	0.0	-70,511	0.0	-70,511	0.0
7	40.5	39.0	-51,641	0.0	-74,075	0.0	-74,075	0.0	-74,075	0.0	-74,075	0.0
8	42.2	40.7	-52,826	0.0	-75,699	0.0	-75,699	0.0	-75,699	0.0	-75,699	0.0
9	44.9	43.4	-38,066	0.0	-66,772	0.0	-66,772	0.0	-66,772	0.0	-66,772	0.0
10	48.2	45.8	-14,725	0.0	-50,956	0.0	-50,956	0.0	-50,956	0.0	-50,956	0.0
11	51.7	48.3	0	0.0	-33,421	0.0	-33,421	0.0	-33,421	0.0	-33,421	0.0
12	55.0	50.7	0	0.0	-12,852	0.0	-12,852	0.0	-12,852	0.0	-12,852	0.0
13	57.7	52.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	59.5	52.6	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
15	60.1	52.7	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
16	59.9	52.6	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
17	59.2	52.1	0	6.7	0	0.0	0	0.0	0	0.0	0	0.0
18	58.2	51.8	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
19	56.8	52.2	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
20	55.0	51.4	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
21	53.1	50.1	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
22	51.0	48.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	48.9	46.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	46.9	44.1	0	0.0	-34,977	0.0	-34,977	0.0	-34,977	0.0	-34,977	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
Location: FORT GORDON, GEORGIA
Client: U. S. ARMY CORP OF ENGINEERS
Program User: BON
Comments: BUILDING 25424 (2 BUILDINGS)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA						180		

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BARRACKS COMPLEX

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	OFFICE AREA	243.8	37	2	0		13.2			

-----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	STORAGE AREA	243.8	60	2	0		13.2			

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50					HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				197			
2	1	YES				197			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	243.8	12.5		196	0			
1	2	37	12.5		196	90			
1	3	37	12.5		196	270			
2	1	60	12.5		196	90			
2	2	243.8	12.5		196	180			
2	3	60	12.5		196	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	5	3	34	1.03	.94					
1	2	1.5	3	20	1.03	.94					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	40	PEOPLE	255	325	2.5		WATT-SF ASHRAE2				
2	13	PEOPLE	315	435	2		WATT-SF SUSFLUOR				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	P.C.	26.9	KW	FGHEAT						
1	2	COPIER	4.3	KW	FGHEAT						
1	3	REFRIG	5.9	KW	FGHEAT						
1	4	MICROWAVE	1600	WATTS	FGHEAT						
1	5	COFFEE POT	.6	KW	FGHEAT						
1	6	TELEVISION	.3	KW	FGHEAT						
1	7	TYPEWRITER	1.1	KW	FGHEAT						
1	8	EWG	4.2	KW	FGHEAT						
1	9	SHREDDER	.8	KW	FGHEAT						
1	10	FAX	.2	KW	FGHEAT						
1	11	DEHUMIDIFIER	.6	KW	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2			1	CFM-SF						

-----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	243.8	12.5		87				2
2	1	243.8	12.5		87				1

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	SINGLE ZONE SYSTEMS

-----CARD 40-- System Type -----

System		-----OPTIONAL VENTILATION SYSTEM-----					
Set	System	Ventil Deck	Cooling	Heating	Cooling	Heating	Fan Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Pressure
1	SZ						
2	UH						

-----CARD 41-- Zone Assignment -----

System Set	Ref #1		Ref #2		Ref #3		Ref #4		Ref #5		Ref #6	
Number	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
1	1	1										
2	2	2										

-----CARD 42-- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path
1											
2											

-----CARD 48-- Cooling Capacity Overrides -----

System	Misc			-----MAIN COOLING-----				---AUX COOLING---	
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units
1			75						

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE
FGHEAT SCHD FOR HEAT LOAD CALCS
HTGCONST SAMPLE HEATING TSTAT SCHEDULE
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE
UH (Utility file not found)

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**                                     **  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by                **  
**                                     **  
*****  
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ENERGY STUDY OF HEATING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORP OF ENGINEERS
BON
BUILDING 25440 (1 BUILDING)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 20:21:46 8/16/94
Dataset Name: FGTPS39 .TM

System 1 Block MZ - MULTIZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==)					Mo/Hr: 8/15	*	Mo/Hr: 6/16					*	Mo/Hr: 13/ 1					*				
Outside Air ==)					OADB/WB/HR: 97/ 76/105.0					*	OADB: 100					*	OADB: 23					*
										*						*						*
	Space	Ret. Air	Ret. Air	Net	Percent	*	Space	Percent	*	Space Peak	Coil Peak	Percent										
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot										
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)										
Envelope Loads						*			*													
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00										
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00										
Roof Cond	31,992	0		31,992	30.84	*	33,787	47.72	*	-17,557	-17,557	15.17										
Glass Solar	6,503	0		6,503	6.27	*	8,436	11.91	*	0	0	0.00										
Glass Cond	3,530	0		3,530	3.40	*	4,127	5.83	*	-8,906	-8,906	7.70										
Wall Cond	16,453	0		16,453	15.86	*	16,238	22.93	*	-24,116	-24,116	20.84										
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00										
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00										
Infiltration	11,039			11,039	10.64	*	8,218	11.61	*	-18,714	-18,714	16.17										
Sub Total==)	69,516	0		69,516	67.00	*	70,806	100.00	*	-69,293	-69,293	59.88										
Internal Loads						*			*													
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00										
People	0			0	0.00	*	0	0.00	*	0	0	0.00										
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00										
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00										
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00										
Outside Air	0	0	0	34,234	33.00	*	0	0.00	*	0	-46,430	40.12										
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00										
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00										
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00										
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00										
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00										
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00										
						*			*													
Grand Total==)	69,516	0	0	103,750	100.00	*	70,806	100.00	*	-69,293	-115,723	100.00										

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	7,803
Main Clg	8.6	103.7	87.9	7,803	77.6	68.1	88.8	66.8	64.3	86.9	Part	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	7,803
Totals	8.6	103.7									Wall	3,749
												176
												5

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	11.9	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent	930	930	Clg Cfm/Sqft	1.00	SADB	66.8	76.0
Main Htg	-79.5	7,803	66.8	76.0	Infil	300	375	Clg Cfm/Ton	902.52	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	7,803	7,803	Clg Sqft/Ton	902.52	Return	75.0	68.0
Preheat	-36.2	7,803	62.6	66.8	Mincfm	0	0	Clg Btuh/Sqft	13.30	Ret/OA	77.6	62.6
Reheat	0.0	0	0.0	0.0	Return	7,803	7,803	No. People	62	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	930	930	Htg % OA	11.9	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0
Total	-115.7				Auxil	0	0	Htg Btuh/SqFt	-14.83	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-58,585	0.0	-79,940	0.0	-76,748	0.0	-76,729	0.0	-76,729	0.0
2	32.9	30.7	-60,425	0.0	-80,161	0.0	-77,580	0.0	-77,565	0.0	-77,565	0.0
3	33.1	31.3	-61,993	0.0	-78,860	0.0	-76,773	0.0	-76,760	0.0	-76,760	0.0
4	33.9	32.1	-62,993	0.0	-76,343	0.0	-74,654	0.0	-74,644	0.0	-74,644	0.0
5	35.2	33.5	-63,431	0.0	-72,893	0.0	-71,527	0.0	-71,519	0.0	-71,519	0.0
6	37.0	35.4	-62,016	0.0	-68,610	0.0	-67,506	0.0	-67,499	0.0	-67,499	0.0
7	39.0	37.6	-59,305	0.0	-64,124	0.0	-63,230	0.0	-63,225	0.0	-63,225	0.0
8	41.3	40.1	-54,795	0.0	-59,050	0.0	-58,327	0.0	-58,323	0.0	-58,323	0.0
9	43.7	42.5	-48,049	0.0	-53,846	0.0	-53,261	0.0	-53,257	0.0	-53,257	0.0
10	46.1	44.0	-39,690	0.0	-48,391	0.0	-47,918	0.0	-47,915	0.0	-47,915	0.0
11	48.4	45.0	-29,607	0.0	-42,684	0.0	-42,302	0.0	-42,299	0.0	-42,299	0.0
12	50.5	45.6	-19,461	0.0	-37,073	0.0	-36,764	0.0	-36,762	0.0	-36,762	0.0
13	52.2	46.1	-11,224	0.0	-32,196	0.0	-31,946	0.0	-31,945	0.0	-31,945	0.0
14	53.5	46.4	-5,051	0.0	-28,132	0.0	-27,931	0.0	-27,930	0.0	-27,930	0.0
15	54.3	46.3	-1,644	0.0	-25,315	0.0	-25,152	0.0	-25,151	0.0	-25,151	0.0
16	54.6	46.1	-1,488	0.0	-23,943	0.0	-23,812	0.0	-23,811	0.0	-23,811	0.0
17	54.0	45.9	-4,043	0.0	-25,168	0.0	-25,062	0.0	-25,062	0.0	-25,062	0.0
18	52.5	45.0	-9,755	0.0	-29,079	0.0	-28,994	0.0	-28,994	0.0	-28,994	0.0
19	50.1	44.8	-17,463	0.0	-35,615	0.0	-35,546	0.0	-35,546	0.0	-35,546	0.0
20	47.1	43.3	-25,573	0.0	-43,640	0.0	-43,584	0.0	-43,584	0.0	-43,584	0.0
21	43.7	40.4	-32,580	0.0	-52,329	0.0	-52,284	0.0	-52,284	0.0	-52,284	0.0
22	40.4	37.3	-38,900	0.0	-60,510	0.0	-60,474	0.0	-60,473	0.0	-60,473	0.0
23	37.3	34.9	-43,810	0.0	-67,949	0.0	-67,919	0.0	-67,919	0.0	-67,919	0.0
24	34.9	32.6	-47,628	0.0	-73,449	0.0	-73,426	0.0	-73,426	0.0	-73,426	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-45,314	0.0	-56,915	0.0	-58,627	0.0	-58,637	0.0	-58,637	0.0
2	39.7	37.1	-48,828	0.0	-62,042	0.0	-63,426	0.0	-63,434	0.0	-63,434	0.0
3	37.8	35.1	-51,746	0.0	-66,744	0.0	-67,862	0.0	-67,869	0.0	-67,869	0.0
4	36.3	33.8	-54,082	0.0	-70,301	0.0	-71,206	0.0	-71,211	0.0	-71,211	0.0
5	35.1	32.6	-55,351	0.0	-73,104	0.0	-73,836	0.0	-73,840	0.0	-73,840	0.0
6	34.4	32.0	-55,125	0.0	-74,693	0.0	-75,284	0.0	-75,288	0.0	-75,288	0.0
7	34.1	31.9	-53,410	0.0	-75,331	0.0	-75,809	0.0	-75,812	0.0	-75,812	0.0
8	34.6	32.4	-49,677	0.0	-74,079	0.0	-74,466	0.0	-74,468	0.0	-74,468	0.0
9	36.0	33.8	-43,990	0.0	-70,553	0.0	-70,866	0.0	-70,868	0.0	-70,868	0.0
10	38.2	34.7	-36,451	0.0	-64,841	0.0	-65,094	0.0	-65,095	0.0	-65,095	0.0
11	40.9	36.2	-27,379	0.0	-57,715	0.0	-57,919	0.0	-57,921	0.0	-57,921	0.0
12	43.9	37.4	-18,108	0.0	-49,775	0.0	-49,940	0.0	-49,941	0.0	-49,941	0.0
13	46.9	39.4	-10,165	0.0	-41,779	0.0	-41,912	0.0	-41,913	0.0	-41,913	0.0
14	49.7	41.4	-4,291	0.0	-34,270	0.0	-34,377	0.0	-34,378	0.0	-34,378	0.0
15	51.8	42.8	-683	0.0	-28,639	0.0	-28,725	0.0	-28,725	0.0	-28,725	0.0
16	53.2	43.9	0	0.0	-24,982	0.0	-25,052	0.0	-25,052	0.0	-25,052	0.0
17	53.7	44.2	-2,213	0.0	-23,873	0.0	-23,929	0.0	-23,930	0.0	-23,930	0.0
18	53.4	44.4	-7,164	0.0	-25,084	0.0	-25,129	0.0	-25,129	0.0	-25,129	0.0
19	52.7	44.4	-13,897	0.0	-27,717	0.0	-27,753	0.0	-27,754	0.0	-27,754	0.0
20	51.5	45.2	-21,553	0.0	-31,861	0.0	-31,890	0.0	-31,890	0.0	-31,890	0.0
21	50.0	44.6	-28,093	0.0	-36,600	0.0	-36,624	0.0	-36,624	0.0	-36,624	0.0
22	48.1	43.3	-34,328	0.0	-42,098	0.0	-42,117	0.0	-42,117	0.0	-42,117	0.0
23	46.1	41.8	-39,403	0.0	-47,551	0.0	-47,567	0.0	-47,567	0.0	-47,567	0.0
24	43.9	40.1	-43,088	0.0	-53,186	0.0	-53,198	0.0	-53,198	0.0	-53,198	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-21,808	0.0	-11,934	0.0	-31,683	0.0	-32,121	0.0	-32,130	0.0
2	48.7	44.6	-25,041	0.0	-22,524	0.0	-38,485	0.0	-38,838	0.0	-38,846	0.0
3	46.6	42.9	-27,558	0.0	-30,910	0.0	-43,812	0.0	-44,098	0.0	-44,104	0.0
4	44.9	41.4	-29,860	0.0	-37,583	0.0	-48,016	0.0	-48,247	0.0	-48,252	0.0
5	43.9	40.8	-30,704	0.0	-41,948	0.0	-50,385	0.0	-50,572	0.0	-50,576	0.0
6	43.5	40.8	-29,891	0.0	-44,502	0.0	-51,326	0.0	-51,477	0.0	-51,480	0.0
7	44.0	41.4	-27,448	0.0	-44,636	0.0	-50,155	0.0	-50,277	0.0	-50,280	0.0
8	45.4	42.7	-22,540	0.0	-42,376	0.0	-46,841	0.0	-46,940	0.0	-46,942	0.0
9	47.7	44.3	-15,073	0.0	-37,614	0.0	-41,224	0.0	-41,304	0.0	-41,306	0.0
10	50.6	45.8	-5,440	0.0	-30,918	0.0	-33,836	0.0	-33,901	0.0	-33,902	0.0
11	53.9	47.4	0	0.0	-22,718	0.0	-25,076	0.0	-25,128	0.0	-25,129	0.0
12	57.4	49.0	0	0.0	-13,706	0.0	-15,610	0.0	-15,652	0.0	-15,653	0.0
13	60.7	50.8	0	0.0	-5,162	0.0	-6,699	0.0	-6,733	0.0	-6,733	0.0
14	63.6	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9	53.7	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	-6,363	0.0	-7,192	0.0	-7,210	0.0	-7,211	0.0
23	57.1	51.9	0	0.0	-15,335	0.0	-16,004	0.0	-16,019	0.0	-16,020	0.0
24	54.2	49.4	0	0.0	-23,739	0.0	-24,280	0.0	-24,292	0.0	-24,292	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	-2,581	0.0	0	0.0	-5,996	0.0	-6,844	0.0	-6,935	0.0
5	54.2	51.4	-4,016	0.0	-3,390	0.0	-12,184	0.0	-12,871	0.0	-12,945	0.0
6	53.5	50.9	-3,468	0.0	-9,376	0.0	-16,507	0.0	-17,064	0.0	-17,123	0.0
7	53.2	51.1	-1,461	0.0	-13,590	0.0	-19,364	0.0	-19,814	0.0	-19,862	0.0
8	53.9	51.5	0	0.0	-14,523	0.0	-19,198	0.0	-19,562	0.0	-19,601	0.0
9	55.9	52.1	0	0.0	-11,424	0.0	-15,206	0.0	-15,501	0.0	-15,533	0.0
10	58.9	53.2	0	0.0	-5,110	0.0	-8,168	0.0	-8,407	0.0	-8,432	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	1.0	0	0.3	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	3.2	0	0.3	0	0.3	0	0.3	0	0.3
17	75.6	62.0	0	4.4	0	0.2	0	0.3	0	0.3	0	0.3
18	74.9	61.7	0	3.7	0	0.2	0	0.2	0	0.2	0	0.2
19	73.7	62.0	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	4.9	0	0.1	0	0.1	0	0.1	0	0.1
13	78.5	63.7	0	5.8	0	0.5	0	0.5	0	0.5	0	0.5
14	81.9	65.3	0	6.4	0	0.7	0	0.7	0	0.7	0	0.7
15	84.1	66.9	0	6.7	0	0.8	0	0.8	0	0.8	0	0.8
16	84.9	67.1	0	6.7	0	2.8	0	2.8	0	2.8	0	2.8
17	84.6	67.3	0	6.3	0	3.6	0	3.6	0	3.6	0	3.6
18	83.8	67.1	0	5.5	0	3.2	0	3.2	0	3.2	0	3.2
19	82.4	67.5	0	4.5	0	2.7	0	2.7	0	2.7	0	2.7
20	80.6	68.9	0	3.4	0	2.1	0	2.1	0	2.1	0	2.1
21	78.5	71.0	0	2.5	0	1.7	0	1.7	0	1.7	0	1.7
22	76.1	69.9	0	1.9	0	1.3	0	1.3	0	1.3	0	1.3
23	73.4	68.0	0	1.4	0	0.6	0	0.6	0	0.6	0	0.6
24	70.8	65.5	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	3.0	0	1.1	0	1.4	0	1.4	0	1.4
2	72.6	68.4	0	2.5	0	0.6	0	0.7	0	0.7	0	0.7
3	70.9	67.3	0	2.1	0	0.1	0	0.2	0	0.2	0	0.2
4	69.6	66.5	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	4.9	0	1.2	0	1.2	0	1.2	0	1.2
11	79.5	69.1	0	6.0	0	3.2	0	3.3	0	3.3	0	3.3
12	82.9	70.1	0	7.1	0	4.0	0	4.0	0	4.0	0	4.0
13	86.0	71.0	0	7.9	0	4.7	0	4.7	0	4.7	0	4.7
14	88.4	72.5	0	8.6	0	5.6	0	5.6	0	5.6	0	5.6
15	90.0	74.0	0	8.6	0	6.3	0	6.3	0	6.3	0	6.3
16	90.5	73.7	0	8.6	0	6.3	0	6.3	0	6.3	0	6.3
17	90.3	74.2	0	8.6	0	6.3	0	6.3	0	6.3	0	6.3
18	89.4	73.9	0	7.8	0	6.0	0	6.0	0	6.0	0	6.0
19	88.1	74.5	0	6.5	0	5.4	0	5.4	0	5.4	0	5.4
20	86.4	75.3	0	5.3	0	4.5	0	4.5	0	4.5	0	4.5
21	84.3	76.5	0	4.6	0	4.2	0	4.2	0	4.2	0	4.2
22	81.9	75.7	0	4.1	0	3.7	0	3.7	0	3.7	0	3.7
23	79.5	74.0	0	3.7	0	3.0	0	3.0	0	3.0	0	3.0
24	77.0	72.1	0	3.2	0	2.2	0	2.2	0	2.2	0	2.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5			0	3.5			0	0.7			0	0.9			0	0.9			0	0.9
2	72.4	69.4			0	2.8			0	0.4			0	0.4			0	0.4			0	0.4
3	71.3	68.4			0	2.4			0	0.0			0	0.0			0	0.0			0	0.0
4	70.5	67.7			0	2.1			0	0.0			0	0.0			0	0.0			0	0.0
5	70.0	67.4			0	1.9			0	0.0			0	0.0			0	0.0			0	0.0
6	69.9	67.5			0	1.9			0	0.0			0	0.0			0	0.0			0	0.0
7	70.3	68.0			0	2.2			0	0.0			0	0.0			0	0.0			0	0.0
8	71.7	69.0			0	2.9			0	0.0			0	0.0			0	0.0			0	0.0
9	73.7	69.5			0	3.9			0	0.0			0	0.0			0	0.0			0	0.0
10	76.2	70.6			0	4.9			0	1.3			0	1.3			0	1.3			0	1.3
11	78.9	71.8			0	5.8			0	3.9			0	3.9			0	3.9			0	3.9
12	81.4	73.0			0	7.0			0	4.6			0	4.6			0	4.6			0	4.6
13	83.4	74.4			0	7.9			0	5.3			0	5.3			0	5.3			0	5.3
14	84.8	74.8			0	8.4			0	5.8			0	5.8			0	5.8			0	5.8
15	85.2	75.0			0	8.6			0	6.0			0	6.0			0	6.0			0	6.0
16	85.1	75.0			0	8.6			0	5.9			0	5.9			0	5.9			0	5.9
17	84.6	74.7			0	8.4			0	5.6			0	5.6			0	5.6			0	5.6
18	83.8	74.6			0	7.4			0	5.2			0	5.2			0	5.2			0	5.2
19	82.7	74.6			0	6.5			0	4.7			0	4.7			0	4.7			0	4.7
20	81.4	74.4			0	5.4			0	4.0			0	4.0			0	4.0			0	4.0
21	79.9	74.9			0	4.6			0	3.4			0	3.4			0	3.4			0	3.4
22	78.4	74.0			0	4.1			0	2.7			0	2.7			0	2.7			0	2.7
23	76.8	72.7			0	3.7			0	2.0			0	2.0			0	2.0			0	2.0
24	75.2	71.6			0	3.3			0	1.5			0	1.5			0	1.5			0	1.5

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0			0	3.4			0	1.0			0	1.3			0	1.3			0	1.3
2	73.2	70.3			0	2.6			0	0.5			0	0.6			0	0.6			0	0.6
3	71.7	68.9			0	2.1			0	0.0			0	0.0			0	0.0			0	0.0
4	70.4	67.8			0	1.8			0	0.0			0	0.0			0	0.0			0	0.0
5	69.5	66.8			0	1.6			0	0.0			0	0.0			0	0.0			0	0.0
6	68.9	66.4			0	1.5			0	0.0			0	0.0			0	0.0			0	0.0
7	68.7	66.4			0	1.8			0	0.0			0	0.0			0	0.0			0	0.0
8	69.2	66.8			0	2.3			0	0.0			0	0.0			0	0.0			0	0.0
9	70.8	67.7			0	3.5			0	0.0			0	0.0			0	0.0			0	0.0
10	73.2	67.7			0	4.6			0	0.0			0	0.0			0	0.0			0	0.0
11	76.2	68.8			0	5.8			0	1.4			0	1.4			0	1.4			0	1.4
12	79.3	70.3			0	6.8			0	3.9			0	3.9			0	3.9			0	3.9
13	82.3	72.2			0	7.8			0	4.7			0	4.7			0	4.7			0	4.7
14	84.7	73.7			0	8.6			0	5.4			0	5.4			0	5.4			0	5.4
15	86.3	74.6			0	8.6			0	6.0			0	6.0			0	6.0			0	6.0
16	86.8	75.1			0	8.6			0	6.1			0	6.1			0	6.1			0	6.1
17	86.6	75.1			0	8.6			0	5.9			0	5.9			0	5.9			0	5.9
18	86.0	75.3			0	7.2			0	5.7			0	5.7			0	5.7			0	5.7
19	85.1	76.0			0	6.2			0	4.9			0	4.9			0	4.9			0	4.9
20	83.8	76.8			0	5.2			0	4.3			0	4.3			0	4.3			0	4.3
21	82.3	77.2			0	4.6			0	3.9			0	3.9			0	3.9			0	3.9
22	80.6	76.3			0	4.0			0	3.5			0	3.5			0	3.5			0	3.5
23	78.7	75.3			0	3.5			0	2.8			0	2.8			0	2.8			0	2.8
24	76.8	73.7			0	3.1			0	2.0			0	2.0			0	2.0			0	2.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	4.8	0	0.2	0	0.2	0	0.2	0	0.2
13	78.3	66.7	0	5.8	0	0.4	0	0.5	0	0.5	0	0.5
14	81.2	68.4	0	6.5	0	0.7	0	0.7	0	0.7	0	0.7
15	83.0	70.0	0	6.8	0	0.8	0	0.8	0	0.8	0	0.8
16	83.7	70.5	0	6.7	0	3.7	0	3.7	0	3.7	0	3.7
17	83.4	70.5	0	6.0	0	3.8	0	3.8	0	3.8	0	3.8
18	82.8	70.9	0	5.0	0	3.4	0	3.4	0	3.4	0	3.4
19	81.6	72.7	0	4.0	0	2.7	0	2.7	0	2.7	0	2.7
20	80.1	74.7	0	3.3	0	2.4	0	2.4	0	2.4	0	2.4
21	78.3	74.1	0	2.7	0	2.0	0	2.0	0	2.0	0	2.0
22	76.3	72.4	0	2.1	0	1.4	0	1.4	0	1.4	0	1.4
23	74.1	70.7	0	1.5	0	0.7	0	0.7	0	0.7	0	0.7
24	71.8	68.9	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-3,352	0.0	-26,528	0.0	-27,263	0.0	-27,287	0.0
2	50.1	48.6	0	0.0	-13,684	0.0	-32,464	0.0	-33,060	0.0	-33,079	0.0
3	48.4	46.9	0	0.0	-21,932	0.0	-37,141	0.0	-37,624	0.0	-37,639	0.0
4	47.1	45.8	0	0.0	-28,384	0.0	-40,701	0.0	-41,091	0.0	-41,104	0.0
5	46.3	44.8	-3,126	0.0	-32,996	0.0	-42,968	0.0	-43,284	0.0	-43,294	0.0
6	46.0	44.5	-6,584	0.0	-35,981	0.0	-44,052	0.0	-44,308	0.0	-44,316	0.0
7	46.8	45.3	-7,314	0.0	-35,930	0.0	-42,461	0.0	-42,668	0.0	-42,675	0.0
8	48.9	47.5	-5,150	0.0	-32,373	0.0	-37,659	0.0	-37,827	0.0	-37,832	0.0
9	52.2	49.9	0	0.0	-25,512	0.0	-29,790	0.0	-29,925	0.0	-29,930	0.0
10	56.2	52.5	0	0.0	-16,459	0.0	-19,918	0.0	-20,028	0.0	-20,031	0.0
11	60.4	54.4	0	0.0	-6,461	0.0	-9,256	0.0	-9,345	0.0	-9,348	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-3,156	0.0	-4,541	0.0	-4,585	0.0	-4,586	0.0
23	57.0	55.1	0	0.0	-11,884	0.0	-13,006	0.0	-13,041	0.0	-13,042	0.0
24	54.5	52.7	0	0.0	-19,707	0.0	-20,615	0.0	-20,644	0.0	-20,645	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
MULTI- ZONE SYSTEMS

November			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OA08	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	52.0	49.2	-18,720	0.0		-17,998	0.0		-31,855	0.0		-32,122	0.0		-32,127	0.0	
2	49.4	47.3	-23,361	0.0		-27,127	0.0		-38,348	0.0		-38,563	0.0		-38,568	0.0	
3	47.2	45.3	-27,247	0.0		-34,576	0.0		-43,661	0.0		-43,835	0.0		-43,839	0.0	
4	45.3	43.4	-30,205	0.0		-40,767	0.0		-48,122	0.0		-48,263	0.0		-48,266	0.0	
5	43.9	42.2	-31,814	0.0		-45,297	0.0		-51,251	0.0		-51,365	0.0		-51,367	0.0	
6	43.0	41.4	-31,143	0.0		-48,339	0.0		-53,159	0.0		-53,251	0.0		-53,253	0.0	
7	42.7	41.2	-28,749	0.0		-49,772	0.0		-53,674	0.0		-53,749	0.0		-53,750	0.0	
8	43.5	42.0	-23,619	0.0		-48,453	0.0		-51,612	0.0		-51,672	0.0		-51,673	0.0	
9	45.9	44.0	-15,606	0.0		-43,055	0.0		-45,612	0.0		-45,661	0.0		-45,662	0.0	
10	49.4	46.6	-5,756	0.0		-34,562	0.0		-36,630	0.0		-36,670	0.0		-36,670	0.0	
11	53.8	48.6	0	0.0		-23,526	0.0		-25,199	0.0		-25,231	0.0		-25,232	0.0	
12	58.4	50.6	0	0.0		-11,962	0.0		-13,313	0.0		-13,339	0.0		-13,340	0.0	
13	62.8	52.6	0	0.0		-1,031	0.0		-2,123	0.0		-2,144	0.0		-2,144	0.0	
14	66.3	54.5	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
15	68.7	55.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
16	69.5	56.1	0	0.5		0	0.0		0	0.0		0	0.0		0	0.0	
17	69.2	55.8	0	0.3		0	0.0		0	0.0		0	0.0		0	0.0	
18	68.3	57.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
19	66.9	59.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
20	65.0	59.4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
21	62.8	58.2	0	0.0		-706	0.0		-1,345	0.0		-1,357	0.0		-1,357	0.0	
22	60.2	56.1	0	0.0		-9,088	0.0		-9,590	0.0		-9,599	0.0		-9,600	0.0	
23	57.5	54.0	0	0.0		-17,085	0.0		-17,491	0.0		-17,499	0.0		-17,500	0.0	
24	54.7	51.7	-1,599	0.0		-24,803	0.0		-25,131	0.0		-25,138	0.0		-25,138	0.0	

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-32,851	0.0	-49,961	0.0	-50,962	0.0	-50,968	0.0	-50,968	0.0
2	43.2	41.1	-36,163	0.0	-54,117	0.0	-54,927	0.0	-54,932	0.0	-54,932	0.0
3	41.8	39.8	-38,796	0.0	-57,446	0.0	-58,102	0.0	-58,106	0.0	-58,106	0.0
4	40.7	38.7	-40,840	0.0	-59,989	0.0	-60,520	0.0	-60,523	0.0	-60,523	0.0
5	40.1	38.4	-42,143	0.0	-61,304	0.0	-61,733	0.0	-61,735	0.0	-61,735	0.0
6	39.9	38.4	-41,445	0.0	-61,659	0.0	-62,006	0.0	-62,008	0.0	-62,008	0.0
7	40.5	39.0	-39,532	0.0	-60,171	0.0	-60,451	0.0	-60,453	0.0	-60,453	0.0
8	42.2	40.7	-35,669	0.0	-56,171	0.0	-56,398	0.0	-56,400	0.0	-56,400	0.0
9	44.9	43.4	-29,778	0.0	-49,818	0.0	-50,001	0.0	-50,002	0.0	-50,002	0.0
10	48.2	45.8	-22,398	0.0	-41,871	0.0	-42,020	0.0	-42,020	0.0	-42,020	0.0
11	51.7	48.3	-12,951	0.0	-33,071	0.0	-33,191	0.0	-33,191	0.0	-33,191	0.0
12	55.0	50.7	-3,660	0.0	-24,446	0.0	-24,543	0.0	-24,544	0.0	-24,544	0.0
13	57.7	52.0	0	0.0	-17,228	0.0	-17,306	0.0	-17,307	0.0	-17,307	0.0
14	59.5	52.6	0	0.0	-12,288	0.0	-12,352	0.0	-12,352	0.0	-12,352	0.0
15	60.1	52.7	0	0.0	-10,376	0.0	-10,427	0.0	-10,427	0.0	-10,427	0.0
16	59.9	52.6	0	0.0	-10,590	0.0	-10,631	0.0	-10,632	0.0	-10,632	0.0
17	59.2	52.1	0	0.0	-12,327	0.0	-12,360	0.0	-12,360	0.0	-12,360	0.0
18	58.2	51.8	0	0.0	-15,244	0.0	-15,271	0.0	-15,271	0.0	-15,271	0.0
19	56.8	52.2	0	0.0	-19,545	0.0	-19,567	0.0	-19,567	0.0	-19,567	0.0
20	55.0	51.4	-4,869	0.0	-24,858	0.0	-24,876	0.0	-24,876	0.0	-24,876	0.0
21	53.1	50.1	-12,682	0.0	-30,203	0.0	-30,217	0.0	-30,217	0.0	-30,217	0.0
22	51.0	48.1	-19,381	0.0	-35,822	0.0	-35,833	0.0	-35,834	0.0	-35,834	0.0
23	48.9	46.2	-24,794	0.0	-41,216	0.0	-41,225	0.0	-41,225	0.0	-41,225	0.0
24	46.9	44.1	-28,975	0.0	-46,164	0.0	-46,171	0.0	-46,171	0.0	-46,171	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORP OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25440 (1 BUILDING)

-----CARD 08-- Climatic Information -----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BRANCH EXCHANGE

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	ALL ONE ROOM	7803		2	0		14			

-----CARD 21-- Thermostat Parameters -----

Room	Room	Room	Cooling	Cooling	Cooling	Heating	Heating	Heating	T'stat	Mass /	Carpet
Number	Design	DB	Design	T'stat	T'stat	Room	T'stat	T'stat	Location	No. Hrs	On
			RH	Driftpoint	Schedule	Design	DB	Driftpoint	Schedule	Flag	Average Floor
1			50		CLGCONST				HTGCONST	LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room	Roof	Roof	Roof	Roof	Roof	Const	Roof	Roof	Roof
Number	Number	Equal to	Length	Width	U-Value	Type	Direction	Tilt	Alpha
1	1	YES			.05	195			

-----CARD 24-- Wall Parameters -----

Room	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Ground
Number	Number	Length	Height	U-Value	Type	Direction	Tilt	Alpha	Reflectance	Multiplier
1	1	102	10.5	.15	198	0				
1	2	76.5	10.5	.15	198	90				
1	3	102	10.5	.15	195	180				
1	4	76.5	10.5	.15	198	270				

-----CARD 25-- Wall/Glass Parameters -----

Room	Wall	Glass	Glass	Pct Glass	Glass	Shading	External	Internal	Percent	Visible	Inside
Number	Number	Length	Width	or No. of	U-Value	Coefficient	Shading	Shading	Solar to	Transmittance	Visible
				Windows			Type	Type	Ret. Air		Reflectance
1	1	13	9.5	1	1.03	.94					
1	4	5.5	9.5	1	1.03	.94					

-----CARD 26-- Schedules -----

Room	People	Lights	Ventilation	Infiltration	Reheat	Cooling	Heating	Auxiliary	Room	Daylighting
Number					Minimum	Fans	Fan	Fan	Exhaust	Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room	People	People	People	People	Lighting	Lighting	Lighting	Percent	--- Daylighting ---
Number	Value	Units	Sensible	Latent	Value	Units	Fixture	Ballast	Reference
							Type	Factor	Point 1
1	62	PEOPLE	255	325	3.4	WATT-SF	ASHRAE2		Point 2

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	81.9	KW	FGHEAT						

Room Number	Cooling		Heating		Infiltration		Infiltration		Reheat Minimum	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.10	CFM-SF		

Room Number	Main				Auxiliary				Room Exhaust	
	Cooling		Heating		Cooling		Heating		Value	Units
1	1	CFM-SF	1	CFM-SF						

Number	Description
1	MULTI- ZONE SYSTEMS

System		-----OPTIONAL VENTILATION SYSTEM-----					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SAOBVh	SAOBVh	Schedule	Schedule	Pressure
1	MZ						

[illegible]

System	Cool Fan	Heat Fan	Return Fan	Mn Exh Fan	Aux Fan	Rm Exh Fan	Cool Fan Mtr	Return Fan Mtr	Supply Duct Ht Gn	Supply Duct Loc	Return Air Path
Set Number	Fan SP	Fan SP	Fan SP	Fan SP	Fan SP	Fan SP	Loc	Loc	Ht Gn	Loc	Path

-----CARD 48-- Cooling Capacity Overrides -----

System			Misc	-----MAIN COOLING-----				---AUX COOLING---	
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units
1			50						

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE
FGHEAT SCHD FOR HEAT LOAD CALCS
HTGCONST SAMPLE HEATING TSTAT SCHEDULE
YES AVAILABLE (100%)

System:

MZ MULTIZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE
FGHEAT SCHD FOR HEAT LOAD CALCS
HTGCONST SAMPLE HEATING TSTAT SCHEDULE
YES AVAILABLE (100%)

System:

FC FAN COIL
SZ SINGLE ZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHO FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

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*****  
*****  
**                                     **  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by              **  
**                                     **  
*****  
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ENERGY STUDY OF COOLING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORPS OF ENGINEERS
BON
BUILDING 25526 (1 BLDG)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8: 3: 4 8/17/94
Dataset Name: FGTYPS42 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****
Peaked at Time ==> Mo/Hr: 8/15 * Mo/Hr: 9/15 * Mo/Hr: 13/ 1
Outside Air ==> OADB/WB/HR: 97/ 76/105.0 * OADB: 94 * OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)		Space Sensible (Btuh)	Percent Of Tot (%)		Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	24,229	0	0	24,229	12.85	*	20,890	16.01	*	-13,296	-13,296	7.12
Glass Solar	55,296	0	0	55,296	29.32	*	72,576	55.62	*	0	0	0.00
Glass Cond	23,138	0	0	23,138	12.27	*	18,985	14.55	*	-58,379	-58,379	31.25
Wall Cond	8,819	0	0	8,819	4.68	*	6,063	4.65	*	-22,548	-22,548	12.07
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	26,321	0	0	26,321	13.96	*	11,970	9.17	*	-36,395	-36,395	19.49
Sub Total==>	137,802	0	0	137,802	73.08	*	130,484	100.00	*	-130,618	-130,618	69.93
Internal Loads												
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	50,774	26.92	*	0	0.00	*	0	-56,165	30.07
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkup	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	137,802	0	0	188,576	100.00	*	130,484	100.00	*	-130,618	-186,783	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	9,600	
Main Clg	15.7	188.6	152.4	77.5	66.1	78.2	62.7	60.0	73.7	Part	0	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	3,200	0 0
Totals	15.7	188.6	0	0.0	0.0	0.0	0.0	0.0	0.0	Wall	7,290	1,152 16

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	11.7	Type	Clg	Htg
					Vent	1,125	1,125	Clg Cfm/Sqft	1.00	SADB	62.7	80.3
Main Htg	-186.8	9,600	62.7	80.3	Infil	583	729	Clg Cfm/Ton	610.89	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	9,600	9,600	Clg Sqft/Ton	610.89	Return	75.0	68.0
Preheat	-0.2	9,600	62.7	62.7	Mincfm	0	0	Clg Btuh/Sqft	19.64	Ret/OA	77.5	62.7
Reheat	0.0	0	0.0	0.0	Return	9,600	9,600	No. People	75	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,125	1,125	Htg % OA	11.7	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0
Total	-186.8	0	0.0	0.0	Auxil	0	0	Htg Btuh/SqFt	-19.46	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-152,600	0.0	-113,444	0.0	-113,444	0.0	-113,444	0.0	-113,444	0.0
2	32.9	30.7	-142,137	0.0	-114,645	0.0	-114,645	0.0	-114,645	0.0	-114,645	0.0
3	33.1	31.3	-134,671	0.0	-115,922	0.0	-115,922	0.0	-115,922	0.0	-115,922	0.0
4	33.9	32.1	-129,286	0.0	-114,041	0.0	-114,041	0.0	-114,041	0.0	-114,041	0.0
5	35.2	33.5	-112,820	0.0	-114,017	0.0	-114,017	0.0	-114,017	0.0	-114,017	0.0
6	37.0	35.4	-104,528	0.0	-112,136	0.0	-112,136	0.0	-112,136	0.0	-112,136	0.0
7	39.0	37.6	-103,196	0.0	-107,505	0.0	-107,505	0.0	-107,505	0.0	-107,505	0.0
8	41.3	40.1	-98,066	0.0	-102,231	0.0	-102,231	0.0	-102,231	0.0	-102,231	0.0
9	43.7	42.5	-75,465	0.0	-89,063	0.0	-89,063	0.0	-89,063	0.0	-89,063	0.0
10	46.1	44.0	-45,642	0.0	-74,567	0.0	-74,567	0.0	-74,567	0.0	-74,567	0.0
11	48.4	45.0	-13,432	0.0	-55,965	0.0	-55,965	0.0	-55,965	0.0	-55,965	0.0
12	50.5	45.6	0	0.0	-44,068	0.0	-44,068	0.0	-44,068	0.0	-44,068	0.0
13	52.2	46.1	0	0.0	-32,479	0.0	-32,479	0.0	-32,479	0.0	-32,479	0.0
14	53.5	46.4	0	0.0	-23,596	0.0	-23,596	0.0	-23,596	0.0	-23,596	0.0
15	54.3	46.3	0	0.0	-18,727	0.0	-18,727	0.0	-18,727	0.0	-18,727	0.0
16	54.6	46.1	0	1.7	-17,252	0.0	-17,252	0.0	-17,252	0.0	-17,252	0.0
17	54.0	45.9	0	2.8	-24,187	0.0	-24,187	0.0	-24,187	0.0	-24,187	0.0
18	52.5	45.0	0	0.2	-37,164	0.0	-37,164	0.0	-37,164	0.0	-37,164	0.0
19	50.1	44.8	0	0.0	-48,780	0.0	-48,780	0.0	-48,780	0.0	-48,780	0.0
20	47.1	43.3	0	0.0	-61,300	0.0	-61,300	0.0	-61,300	0.0	-61,300	0.0
21	43.7	40.4	0	0.0	-74,073	0.0	-74,073	0.0	-74,073	0.0	-74,073	0.0
22	40.4	37.3	0	0.0	-85,729	0.0	-85,729	0.0	-85,729	0.0	-85,729	0.0
23	37.3	34.9	-58,408	0.0	-96,006	0.0	-96,006	0.0	-96,006	0.0	-96,006	0.0
24	34.9	32.6	-74,563	0.0	-104,703	0.0	-104,703	0.0	-104,703	0.0	-104,703	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-77,928	0.0	-89,099	0.0	-89,099	0.0	-89,099	0.0	-89,099	0.0
2	39.7	37.1	-84,595	0.0	-95,588	0.0	-95,588	0.0	-95,588	0.0	-95,588	0.0
3	37.8	35.1	-90,666	0.0	-102,163	0.0	-102,163	0.0	-102,163	0.0	-102,163	0.0
4	36.3	33.8	-95,639	0.0	-106,584	0.0	-106,584	0.0	-106,584	0.0	-106,584	0.0
5	35.1	32.6	-97,782	0.0	-114,545	0.0	-114,545	0.0	-114,545	0.0	-114,545	0.0
6	34.4	32.0	-100,117	0.0	-115,571	0.0	-115,571	0.0	-115,571	0.0	-115,571	0.0
7	34.1	31.9	-99,021	0.0	-118,761	0.0	-118,761	0.0	-118,761	0.0	-118,761	0.0
8	34.6	32.4	-91,642	0.0	-116,976	0.0	-116,976	0.0	-116,976	0.0	-116,976	0.0
9	36.0	33.8	-70,534	0.0	-105,347	0.0	-105,347	0.0	-105,347	0.0	-105,347	0.0
10	38.2	34.7	-40,700	0.0	-92,404	0.0	-92,404	0.0	-92,404	0.0	-92,404	0.0
11	40.9	36.2	-12,151	0.0	-76,839	0.0	-76,839	0.0	-76,839	0.0	-76,839	0.0
12	43.9	37.4	0	0.0	-62,318	0.0	-62,318	0.0	-62,318	0.0	-62,318	0.0
13	46.9	39.4	0	0.0	-42,105	0.0	-42,105	0.0	-42,105	0.0	-42,105	0.0
14	49.7	41.4	0	0.0	-30,882	0.0	-30,882	0.0	-30,882	0.0	-30,882	0.0
15	51.8	42.8	0	0.0	-21,430	0.0	-21,430	0.0	-21,430	0.0	-21,430	0.0
16	53.2	43.9	0	0.7	-21,460	0.0	-21,460	0.0	-21,460	0.0	-21,460	0.0
17	53.7	44.2	0	2.7	-25,679	0.0	-25,679	0.0	-25,679	0.0	-25,679	0.0
18	53.4	44.4	0	0.8	-31,769	0.0	-31,769	0.0	-31,769	0.0	-31,769	0.0
19	52.7	44.4	0	0.0	-44,040	0.0	-44,040	0.0	-44,040	0.0	-44,040	0.0
20	51.5	45.2	0	0.0	-52,515	0.0	-52,515	0.0	-52,515	0.0	-52,515	0.0
21	50.0	44.6	0	0.0	-59,474	0.0	-59,474	0.0	-59,474	0.0	-59,474	0.0
22	48.1	43.3	0	0.0	-66,325	0.0	-66,325	0.0	-66,325	0.0	-66,325	0.0
23	46.1	41.8	-45,210	0.0	-73,979	0.0	-73,979	0.0	-73,979	0.0	-73,979	0.0
24	43.9	40.1	-70,375	0.0	-81,167	0.0	-81,167	0.0	-81,167	0.0	-81,167	0.0

March		----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----				
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	51.3	46.8	-36,910			0.0	0			0.0	-53,733			0.0	-53,733			0.0	-53,733			0.0
2	48.7	44.6	-43,906			0.0	-41,222			0.0	-63,304			0.0	-63,304			0.0	-63,304			0.0
3	46.6	42.9	-49,875			0.0	-69,298			0.0	-69,298			0.0	-69,298			0.0	-69,298			0.0
4	44.9	41.4	-55,007			0.0	-74,932			0.0	-74,932			0.0	-74,932			0.0	-74,932			0.0
5	43.9	40.8	-58,926			0.0	-79,031			0.0	-79,031			0.0	-79,031			0.0	-79,031			0.0
6	43.5	40.8	-58,903			0.0	-82,682			0.0	-82,682			0.0	-82,682			0.0	-82,682			0.0
7	44.0	41.4	-57,257			0.0	-81,861			0.0	-81,861			0.0	-81,861			0.0	-81,861			0.0
8	45.4	42.7	-45,512			0.0	-75,409			0.0	-75,409			0.0	-75,409			0.0	-75,409			0.0
9	47.7	44.3	-23,275			0.0	-64,412			0.0	-64,412			0.0	-64,412			0.0	-64,412			0.0
10	50.6	45.8		0		0.0	-47,787			0.0	-47,787			0.0	-47,787			0.0	-47,787			0.0
11	53.9	47.4		0		0.0	-26,059			0.0	-26,059			0.0	-26,059			0.0	-26,059			0.0
12	57.4	49.0		0		0.0	-5,141			0.0	-5,141			0.0	-5,141			0.0	-5,141			0.0
13	60.7	50.8		0		0.0	0			0.0	0			0.0	0			0.0	0			0.0
14	63.6	52.7		0		6.4	0			0.0	0			0.0	0			0.0	0			0.0
15	65.9	53.7		0		7.5	0			0.0	0			0.0	0			0.0	0			0.0
16	67.3	54.4		0		7.4	0			0.0	0			0.0	0			0.0	0			0.0
17	67.8	54.6		0		6.4	0			0.0	0			0.0	0			0.0	0			0.0
18	67.4	54.8		0		4.7	0			0.0	0			0.0	0			0.0	0			0.0
19	66.4	55.2		0		2.4	0			0.0	0			0.0	0			0.0	0			0.0
20	64.7	56.0		0		0.7	0			0.0	0			0.0	0			0.0	0			0.0
21	62.5	56.0		0		0.0	0			0.0	0			0.0	0			0.0	0			0.0
22	60.0	54.1		0		0.0	0			0.0	0											

April			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	61.0	56.5		-1,059		0.0		0		0.0		0		0.0		0		0.0		0		0.0
2	58.9	54.9		-7,647		0.0		0		0.0		0		0.0		0		0.0		0		0.0
3	57.0	53.5		-13,281		0.0		0		0.0		0		0.0		0		0.0		0		0.0
4	55.4	52.4		-17,728		0.0		0		0.0		-8,845		0.0		-8,845		0.0		-8,845		0.0
5	54.2	51.4		-21,629		0.0		-22,104		0.0		-42,911		0.0		-42,911		0.0		-42,911		0.0
6	53.5	50.9		-21,423		0.0		-46,275		0.0		-46,276		0.0		-46,276		0.0		-46,276		0.0
7	53.2	51.1		-15,977		0.0		-46,887		0.0		-46,887		0.0		-46,887		0.0		-46,887		0.0
8	53.9	51.5		-1,064		0.0		-41,816		0.0		-41,816		0.0		-41,816		0.0		-41,816		0.0
9	55.9	52.1		0		0.0		-33,069		0.0		-33,069		0.0		-33,069		0.0		-33,069		0.0
10	58.9	53.2		0		0.0		-14,812		0.0		-14,812		0.0		-14,812		0.0		-14,812		0.0
11	62.6	55.2		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
12	66.5	57.3		0		1.5		0		0.0		0		0.0		0		0.0		0		0.0
13	70.2	59.6		0		7.7		0		0.0		0		0.0		0		0.0		0		0.0
14	73.2	61.0		0		8.6		0		0.0		0		0.0		0		0.0		0		0.0
15	75.2	62.2		0		9.1		0		0.0		0		0.0		0		0.0		0		0.0
16	75.9	62.2		0		8.8		0		2.4		0		2.4		0		2.4		0		2.4
17	75.6	62.0		0		8.0		0		3.4		0		3.4		0		3.4		0		3.4
18	74.9	61.7		0		6.8		0		2.7		0		2.7		0		2.7		0		2.7
19	73.7	62.0		0		4.9		0		1.9		0		1.9		0		1.9		0		1.9
20	72.1	62.4		0		3.3		0		1.0		0		1.0		0		1.0		0		1.0
21	70.2	63.3		0		2.0		0		0.2		0		0.2		0		0.2		0		0.2
22	68.0	62.5		0		1.0		0		0.0		0		0.0		0		0.0		0		0.0
23	65.7	60.5		0		0.2		0		0.0		0		0.0		0		0.0		0		0.0
24	63.4	58.5		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May	----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton		
1	68.2	63.5	0		0.0		0		0.0		0		0.0		0		0.0			
2	65.7	61.5	0		0.0		0		0.0		0		0.0		0		0.0			
3	63.6	59.7	0		0.0		0		0.0		0		0.0		0		0.0			
4	61.8	58.4	0		0.0		0		0.0		0		0.0		0		0.0			
5	60.5	57.1	0		0.0		0		0.0		0		0.0		0		0.0			
6	59.7	56.5	0		0.0		0		0.0		0		0.0		0		0.0			
7	59.4	56.5	0		0.0		0		0.0		0		0.0		0		0.0			
8	60.1	56.3	0		0.2		-1,778		0.0		-1,778		0.0		-1,778		0.0			
9	62.4	56.3	0		3.2		-8,485		0.0		-8,485		0.0		-8,485		0.0			
10	65.7	57.2	0		5.0		0		0.0		0		0.0		0		0.0			
11	69.9	58.9	0		6.8		0		0.0		0		0.0		0		0.0			
12	74.3	60.9	0		8.4		0		0.0		0		0.0		0		0.0			
13	78.5	63.7	0		9.7		0		0.0		0		0.0		0		0.0			
14	81.9	65.3	0		10.6		0		2.3		0		2.3		0		2.3			
15	84.1	66.9	0		11.2		0		6.5		0		6.5		0		6.5			
16	84.9	67.1	0		10.9		0		6.5		0		6.5		0		6.5			
17	84.6	67.3	0		10.3		0		6.2		0		6.2		0		6.2			
18	83.8	67.1	0		9.2		0		5.8		0		5.8		0		5.8			
19	82.4	67.5	0		7.7		0		5.1		0		5.1		0		5.1			
20	80.6	68.9	0		5.8		0		4.2		0		4.2		0		4.2			
21	78.5	71.0	0		4.4		0		3.6		0		3.6		0		3.6			
22	76.1	69.9	0		3.5		0		2.6		0		2.6		0		2.6			
23	73.4	68.0	0		2.6		0		1.4		0		1.4		0		1.4			
24	70.8	65.5	0		1.9		0		0.3		0		0.3		0		0.3			

June Hour			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----			
	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	74.7	70.1		0		5.3		0		2.5		0		2.5
2	72.6	68.4		0		4.2		0		1.4		0		1.4
3	70.9	67.3		0		3.8		0		0.5		0		0.5
4	69.6	66.5		0		3.4		0		0.0		0		0.0
5	68.7	65.8		0		3.0		0		0.0		0		0.0
6	68.5	65.7		0		3.0		0		0.0		0		0.0
7	69.0	66.3		0		4.3		0		0.0		0		0.0
8	70.6	66.9		0		6.0		0		0.0		0		0.0
9	73.0	67.7		0		7.5		0		1.6		0		1.6
10	76.1	68.1		0		9.2		0		4.4		0		4.4
11	79.5	69.1		0		10.7		0		5.7		0		5.7
12	82.9	70.1		0		12.2		0		7.2		0		7.2
13	86.0	71.0		0		13.4		0		8.5		0		8.5
14	88.4	72.5		0		14.2		0		10.0		0		10.0
15	90.0	74.0		0		14.6		0		11.2		0		11.2
16	90.5	73.7		0		14.6		0		10.8		0		10.8
17	90.3	74.2		0		14.0		0		10.6		0		10.6
18	89.4	73.9		0		12.9		0		10.2		0		10.2
19	88.1	74.5		0		11.4		0		9.3		0		9.3
20	86.4	75.3		0		9.4		0		7.7		0		7.7
21	84.3	76.5		0		8.3		0		6.9		0		6.9
22	81.9	75.7		0		7.4		0		6.1		0		6.1
23	79.5	74.0		0		6.5		0		5.3		0		5.3
24	77.0	72.1		0		5.8		0		3.7		0		3.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0		6.1		0		1.4		0		1.8		0		1.8		0		1.8
2	72.4	69.4		0		4.7		0		0.8		0		0.8		0		0.8		0		0.8
3	71.3	68.4		0		4.2		0		0.3		0		0.4		0		0.4		0		0.4
4	70.5	67.7		0		4.0		0		0.0		0		0.0		0		0.0		0		0.0
5	70.0	67.4		0		3.6		0		0.0		0		0.0		0		0.0		0		0.0
6	69.9	67.5		0		3.6		0		0.0		0		0.0		0		0.0		0		0.0
7	70.3	68.0		0		4.7		0		0.0		0		0.0		0		0.0		0		0.0
8	71.7	69.0		0		6.2		0		0.0		0		0.0		0		0.0		0		0.0
9	73.7	69.5		0		7.5		0		1.6		0		1.6		0		1.6		0		1.6
10	76.2	70.6		0		9.0		0		5.1		0		5.1		0		5.1		0		5.1
11	78.9	71.8		0		10.6		0		6.3		0		6.3		0		6.3		0		6.3
12	81.4	73.0		0		12.3		0		8.0		0		8.0		0		8.0		0		8.0
13	83.4	74.4		0		13.4		0		9.2		0		9.2		0		9.2		0		9.2
14	84.8	74.8		0		14.1		0		9.9		0		9.9		0		9.9		0		9.9
15	85.2	75.0		0		14.5		0		10.4		0		10.4		0		10.4		0		10.4
16	85.1	75.0		0		14.3		0		10.0		0		10.0		0		10.0		0		10.0
17	84.6	74.7		0		13.9		0		9.4		0		9.4		0		9.4		0		9.4
18	83.8	74.6		0		12.7		0		8.9		0		8.9		0		8.9		0		8.9
19	82.7	74.6		0		11.3		0		8.1		0		8.1		0		8.1		0		8.1
20	81.4	74.4		0		9.5		0		6.8		0		6.8		0		6.8		0		6.8
21	79.9	74.9		0		8.4		0		5.7		0		5.7		0		5.7		0		5.7
22	78.4	74.0		0		7.3		0		4.9		0		4.9		0		4.9		0		4.9
23	76.8	72.7		0		6.7		0		3.7		0		3.7		0		3.7		0		3.7
24	75.2	71.6		0		6.0		0		2.7		0		2.7		0		2.7		0		2.7

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0		5.9		0		2.1		0		2.6		0		2.6		0		2.6
2	73.2	70.3		0		4.4		0		1.4		0		1.5		0		1.5		0		1.5
3	71.7	68.9		0		4.0		0		0.6		0		0.6		0		0.6		0		0.6
4	70.4	67.8		0		3.6		0		0.0		0		0.0		0		0.0		0		0.0
5	69.5	66.8		0		3.1		0		0.0		0		0.0		0		0.0		0		0.0
6	68.9	66.4		0		3.1		0		0.0		0		0.0		0		0.0		0		0.0
7	68.7	66.4		0		3.6		0		0.0		0		0.0		0		0.0		0		0.0
8	69.2	66.8		0		5.1		0		0.0		0		0.0		0		0.0		0		0.0
9	70.8	67.7		0		7.1		0		0.0		0		0.0		0		0.0		0		0.0
10	73.2	67.7		0		8.9		0		2.2		0		2.2		0		2.2		0		2.2
11	76.2	68.8		0		10.9		0		5.7		0		5.7		0		5.7		0		5.7
12	79.3	70.3		0		12.5		0		7.0		0		7.0		0		7.0		0		7.0
13	82.3	72.2		0		14.1		0		8.6		0		8.6		0		8.6		0		8.6
14	84.7	73.7		0		15.3		0		10.0		0		10.0		0		10.0		0		10.0
15	86.3	74.6		0		15.5		0		10.9		0		10.9		0		10.9		0		10.9
16	86.8	75.1		0		15.5		0		10.9		0		10.9		0		10.9		0		10.9
17	86.6	75.1		0		14.2		0		10.3		0		10.3		0		10.3		0		10.3
18	86.0	75.3		0		12.8		0		9.9		0		9.9		0		9.9		0		9.9
19	85.1	76.0		0		11.3		0		8.7		0		8.7		0		8.7		0		8.7
20	83.8	76.8		0		9.5		0		7.6		0		7.6		0		7.6		0		7.6
21	82.3	77.2		0		8.6		0		7.0		0		7.0		0		7.0		0		7.0
22	80.6	76.3		0		7.4		0		6.1		0		6.1		0		6.1		0		6.1
23	78.7	75.3		0		6.6		0		4.9		0		4.9		0		4.9		0		4.9
24	76.8	73.7		0		5.9		0		3.7		0		3.7		0		3.7		0		3.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	69.6	67.4		0	3.4		0	0.0		0	0.0		0	0.0		0	0.0
2	67.6	65.0		0	2.2		0	0.0		0	0.0		0	0.0		0	0.0
3	65.8	63.4		0	1.4		0	0.0		0	0.0		0	0.0		0	0.0
4	64.3	62.2		0	0.8		0	0.0		0	0.0		0	0.0		0	0.0
5	63.1	61.1		0	0.4		0	0.0		0	0.0		0	0.0		0	0.0
6	62.4	60.3		0	0.3		0	0.0		0	0.0		0	0.0		0	0.0
7	62.2	60.2		0	0.5		0	0.0		0	0.0		0	0.0		0	0.0
8	62.9	60.9		0	1.9		0	0.0		0	0.0		0	0.0		0	0.0
9	64.7	61.8		0	4.1		0	0.0		0	0.0		0	0.0		0	0.0
10	67.6	62.1		0	6.6		0	0.0		0	0.0		0	0.0		0	0.0
11	71.1	63.1		0	8.8		0	0.0		0	0.0		0	0.0		0	0.0
12	74.8	64.6		0	10.4		0	0.0		0	0.0		0	0.0		0	0.0
13	78.3	66.7		0	12.3		0	3.6		0	3.7		0	3.7		0	3.7
14	81.2	68.4		0	13.5		0	8.5		0	8.5		0	8.5		0	8.5
15	83.0	70.0		0	14.0		0	8.9		0	8.9		0	8.9		0	8.9
16	83.7	70.5		0	13.7		0	9.0		0	9.0		0	9.0		0	9.0
17	83.4	70.5		0	12.3		0	8.4		0	8.4		0	8.4		0	8.4
18	82.8	70.9		0	10.3		0	7.4		0	7.4		0	7.4		0	7.4
19	81.6	72.7		0	8.5		0	6.3		0	6.3		0	6.3		0	6.3
20	80.1	74.7		0	7.3		0	5.7		0	5.7		0	5.7		0	5.7
21	78.3	74.1		0	6.2		0	4.7		0	4.7		0	4.7		0	4.7
22	76.3	72.4		0	5.0		0	3.7		0	3.7		0	3.7		0	3.7
23	74.1	70.7		0	3.8		0	2.4		0	2.4		0	2.4		0	2.4
24	71.8	68.9		0	3.0		0	1.2		0	1.2		0	1.2		0	1.2

October			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	52.2	50.5		0	0.0		0	0.0		-2,973	0.0		-2,973	0.0		-2,973	0.0
2	50.1	48.6		0	0.0		0	0.0		-52,257	0.0		-52,257	0.0		-52,257	0.0
3	48.4	46.9		0	0.0		-49,043	0.0		-57,753	0.0		-57,753	0.0		-57,753	0.0
4	47.1	45.8		0	0.0		-63,348	0.0		-63,348	0.0		-63,348	0.0		-63,348	0.0
5	46.3	44.8		-48,038	0.0		-67,898	0.0		-67,898	0.0		-67,898	0.0		-67,898	0.0
6	46.0	44.5		-49,719	0.0		-72,367	0.0		-72,367	0.0		-72,367	0.0		-72,367	0.0
7	46.8	45.3		-47,882	0.0		-70,861	0.0		-70,861	0.0		-70,861	0.0		-70,861	0.0
8	48.9	47.5		-32,130	0.0		-62,342	0.0		-62,342	0.0		-62,342	0.0		-62,342	0.0
9	52.2	49.9		-5,889	0.0		-45,086	0.0		-45,086	0.0		-45,086	0.0		-45,086	0.0
10	56.2	52.5		0	0.0		-25,216	0.0		-25,216	0.0		-25,216	0.0		-25,216	0.0
11	60.4	54.4		0	0.0		-1,077	0.0		-1,077	0.0		-1,077	0.0		-1,077	0.0
12	64.4	56.0		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
13	67.7	57.3		0	5.4		0	0.0		0	0.0		0	0.0		0	0.0
14	69.8	58.2		0	8.6		0	0.0		0	0.0		0	0.0		0	0.0
15	70.6	58.1		0	9.1		0	0.0		0	0.0		0	0.0		0	0.0
16	70.3	57.5		0	8.6		0	0.2		0	0.2		0	0.2		0	0.2
17	69.5	57.3		0	7.3		0	2.2		0	2.2		0	2.2		0	2.2
18	68.2	57.7		0	5.0		0	0.9		0	0.9		0	0.9		0	0.9
19	66.5	60.6		0	3.0		0	0.0		0	0.0		0	0.0		0	0.0
20	64.4	60.8		0	1.5		0	0.0		0	0.0		0	0.0		0	0.0
21	62.1	59.4		0	0.2		0	0.0		0	0.0		0	0.0		0	0.0
22	59.6	57.3		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
23	57.0	55.1		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
24	54.5	52.7		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton		Htg Btuh	Clg Ton	
1	52.0	49.2	0	0.0		0	0.0		-46,112	0.0		-46,112	0.0		-46,112	0.0	
2	49.4	47.3	-44,329	0.0		-29,428	0.0		-55,901	0.0		-55,901	0.0		-55,901	0.0	
3	47.2	45.3	-52,947	0.0		-64,198	0.0		-64,198	0.0		-64,198	0.0		-64,198	0.0	
4	45.3	43.4	-58,439	0.0		-70,328	0.0		-70,328	0.0		-70,328	0.0		-70,328	0.0	
5	43.9	42.2	-60,633	0.0		-75,077	0.0		-75,077	0.0		-75,077	0.0		-75,077	0.0	
6	43.0	41.4	-62,430	0.0		-79,380	0.0		-79,380	0.0		-79,380	0.0		-79,380	0.0	
7	42.7	41.2	-60,614	0.0		-82,298	0.0		-82,298	0.0		-82,298	0.0		-82,298	0.0	
8	43.5	42.0	-50,425	0.0		-79,798	0.0		-79,798	0.0		-79,798	0.0		-79,798	0.0	
9	45.9	44.0	-22,397	0.0		-64,594	0.0		-64,594	0.0		-64,594	0.0		-64,594	0.0	
10	49.4	46.6	0	0.0		-44,710	0.0		-44,710	0.0		-44,710	0.0		-44,710	0.0	
11	53.8	48.6	0	0.0		-23,501	0.0		-23,501	0.0		-23,501	0.0		-23,501	0.0	
12	58.4	50.6	0	0.0		-3,342	0.0		-3,342	0.0		-3,342	0.0		-3,342	0.0	
13	62.8	52.6	0	2.7		0	0.0		0	0.0		0	0.0		0	0.0	
14	66.3	54.5	0	8.2		0	0.0		0	0.0		0	0.0		0	0.0	
15	68.7	55.7	0	8.8		0	0.0		0	0.0		0	0.0		0	0.0	
16	69.5	56.1	0	8.3		0	0.0		0	0.0		0	0.0		0	0.0	
17	69.2	55.8	0	6.7		0	0.0		0	0.0		0	0.0		0	0.0	
18	68.3	57.0	0	4.3		0	0.0		0	0.0		0	0.0		0	0.0	
19	66.9	59.4	0	2.4		0	0.0		0	0.0		0	0.0		0	0.0	
20	65.0	59.4	0	0.6		0	0.0		0	0.0		0	0.0		0	0.0	
21	62.8	58.2	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
22	60.2	56.1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
23	57.5	54.0	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
24	54.7	51.7	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

December			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	44.9	42.5	-55,154			0.0	-74,321			0.0	-74,321			0.0	-74,321			0.0	-74,321			0.0
2	43.2	41.1	-61,703			0.0	-80,745			0.0	-80,745			0.0	-80,745			0.0	-80,745			0.0
3	41.8	39.8	-67,582			0.0	-85,583			0.0	-85,583			0.0	-85,583			0.0	-85,583			0.0
4	40.7	38.7	-72,399			0.0	-90,058			0.0	-90,058			0.0	-90,058			0.0	-90,058			0.0
5	40.1	38.4	-76,307			0.0	-93,495			0.0	-93,495			0.0	-93,495			0.0	-93,495			0.0
6	39.9	38.4	-76,348			0.0	-96,377			0.0	-96,377			0.0	-96,377			0.0	-96,377			0.0
7	40.5	39.0	-75,166			0.0	-97,113			0.0	-97,113			0.0	-97,113			0.0	-97,113			0.0
8	42.2	40.7	-71,972			0.0	-94,606			0.0	-94,606			0.0	-94,606			0.0	-94,606			0.0
9	44.9	43.4	-48,540			0.0	-79,048			0.0	-79,048			0.0	-79,048			0.0	-79,048			0.0
10	48.2	45.8	-18,475			0.0	-59,589			0.0	-59,589			0.0	-59,589			0.0	-59,589			0.0
11	51.7	48.3		0		0.0	-38,063			0.0	-38,063			0.0	-38,063			0.0	-38,063			0.0
12	55.0	50.7		0		0.0	-19,921			0.0	-19,921			0.0	-19,921			0.0	-19,921			0.0
13	57.7	52.0		0		0.0	-4,454			0.0	-4,454			0.0	-4,454			0.0	-4,454			0.0
14	59.5	52.6		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
15	60.1	52.7		0		5.7		0		0.0		0		0.0		0		0.0		0		0.0
16	59.9	52.6		0		5.5		0		0.0		0		0.0		0		0.0		0		0.0
17	59.2	52.1		0		4.1		0		0.0		0		0.0		0		0.0		0		0.0
18	58.2	51.8		0		1.7		0		0.0		0		0.0		0		0.0		0		0.0
19	56.8	52.2		0		0.0	-25,977			0.0	-25,977			0.0	-25,977			0.0	-25,977			0.0
20	55.0	51.4		0		0.0	-36,025			0.0	-36,025			0.0	-36,025			0.0	-36,025			0.0
21	53.1	50.1		0		0.0	-43,128			0.0	-43,128			0.0	-43,128			0.0	-43,128			0.0
22	51.0	48.1		0		0.0	-51,744			0.0	-51,744			0.0	-51,744			0.0	-51,744			0.0
23	48.9	46.2		0		0.0	-59,922			0.0	-59,922			0.0	-59,922			0.0	-59,922			0.0
24	46.9	44.1	-10,257			0.0	-66,906			0.0	-66,906			0.0	-66,906			0.0	-66,906			0.0

01 Card - Job Information

 Project: ENERGY STUDY OF COOLING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORPS OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25526 (1 BLDG)

-----CARD 08-- Climatic Information -----

Weather	Summer	Winter	Summer	Summer	Winter	Building	Summer	Winter
Code	Clearness	Clearness	Design	Design	Design	Orientation	Ground	Ground
	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb		Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	YES

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	REGIMENTAL BRIGADE H.Q.

-----CARD 20-- General Room Parameters -----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	BLOCK	3200		3	0		10.5	3		

-----CARD 21-- Thermostat Parameters -----

Room	Cooling Room	Room Design	Cooling T'stat	Cooling T'stat	Heating Room	Heating T'stat	Heating T'stat	Heating T'stat	T'stat Location	Mass / No. Hrs	Carpet On
Number	Design DB	RH	Driftpoint	Schedule	Design DB	Driftpoint	Schedule	Flag		Average	Floor
1		50		CLGCONST				HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room	Roof	Equal to	Roof	Roof	Roof	Const	Roof	Roof	Roof
Number	Number	Floor?	Length	Width	U-Value	Type	Direction	Tilt	Alpha
1	1	YES				182			

-----CARD 24-- Wall Parameters -----

Room	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Ground
Number	Number	Length	Height	U-Value	Constuc	Type	Direction	Tilt	Reflectance
1	1	40.7	10		181	270			
1	2	80.8	10		181	0			
1	3	40.7	10		181	90			
1	4	80.8	10		181	180			

-----CARD 25-- Wall/Glass Parameters -----

Room	Wall	Glass	Glass	Pct Glass	Glass	Shading	External	Internal	Percent	Visible	Inside
Number	Number	Length	Width	or No. of	U-Value	Coefficient	Shading	Shading	Solar to	Transmittance	Visible
				Windows			Type	Type	Ret. Air		Reflectance
1	1	3.5	10	1	1.03	.87					
1	2	12.8	10	1	1.03	.87					
1	3	3.5	10	1	1.03	.87					
1	4	18.6	10	1	1.03	.87					

-----CARD 26-- Schedules -----

Room	People	Lights	Ventilation	Infiltration	Reheat	Cooling	Heating	Auxiliary	Room	Daylighting
Number	Value	Value	Value	Value	Minimum	Fans	Fan	Fan	Exhaust	Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room	People	People	People	People	Lighting	Lighting	Lighting	Ballast	Percent	--- Daylighting ---
Number	Value	Units	Sensible	Latent	Value	Units	Fixture	Factor	Lights to	Reference
							Type		Ret. Air	Point 1
1	25	PEOPLE	255	325	2.20	WATT-SF	ASHRAE2			Point 2

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	P.C.	9.9	KW	FGHEAT						
1	2	PRINTERS	1.1	KW	FGHEAT						
1	3	OTHER	4.1	KW	FGHEAT						

Ventilation					Infiltration				Reheat Minimum	
Room Number	Cooling		Heating		Cooling		Heating		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----Main-----					-----Auxiliary-----					
Room Number	---Cooling---		---Heating---		---Cooling---		---Heating---		--Room Exhaust--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1	CFM-SF	1	CFM-SF						

System		-----OPTIONAL VENTILATION SYSTEM-----					Fan	
Set	System	Ventil	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBVh	SADBVh	Schedule	Schedule	Schedule	Pressure
1	SZ							

[illegible][illegible]

-----CARD 48-- Cooling Capacity Overrides -----

System			Misc	-----MAIN COOLING-----	---AUX COOLING---				
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units
1			85						

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHD FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

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*****  
*****  
**                                     **  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by              **  
**                                     **  
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ENERGY STUDY OF COOLING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORPS OF ENGINEERS
BON
BUILDING 28414, CHAPEL

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8:22:43 8/17/94
Dataset Name: FGTYP543 .TM

System 1 Block VAV - VARIABLE AIR VOLUME

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****
Peaked at Time ==> Mo/Hr: 8/15 * Mo/Hr: 6/15 * Mo/Hr: 13/ 1
Outside Air ==> OADB/WB/HR: 97/ 76/105.0 * OADB: 100 * OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)		Space Sensible (Btuh)	Perct Of Tot (%)		Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads												
Skylite Solr	28,176	0		28,176	8.63	*	30,363	25.41	*	0	0	0.00
Skylite Cond	0	2,098		2,098	0.64	*	0	0.00	*	0	-5,593	3.90
Roof Cond	0	32,490		32,490	9.95	*	0	0.00	*	0	-19,939	13.90
Glass Solar	22,626	0		22,626	6.93	*	22,626	18.94	*	0	0	0.00
Glass Cond	19,730	0		19,730	6.04	*	23,121	19.35	*	-50,866	-50,866	35.46
Wall Cond	14,525	4,299		18,824	5.76	*	15,714	13.15	*	-26,386	-33,025	23.02
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	28,173			28,173	8.63	*	15,359	12.86	*	-34,013	-34,013	23.71
Sub Total==>	113,230	38,888		152,118	46.58	*	107,183	89.71	*	-111,265	-143,436	100.00
Internal Loads												
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	7,590	-7,590		0	0.00	*	12,290	10.29	*	-29,447	0	0.00
Outside Air	0	0	0	186,081	56.97	*	0	0.00	*	0	0	0.00
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		-11,591	0	-11,591	-3.55	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
Grand Total==>	120,820	19,707	0	326,607	100.00	*	119,472	100.00	*	-140,713	-143,436	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	8,254	
Main Clg	27.2	326.6	4,960	91.5	73.1	94.1	55.8	53.3	57.2	Part	0	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	8,919	243 3
Totals	27.2	326.6								Wall	7,570	943 12

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg
					Vent	3,600	0	Clg Cfm/Sqft	64.2	SADB	55.8	68.1
Main Htg	-143.4	0	0.0	0.0	Infil	545	681	Clg Cfm/Ton	205.97	Plenum	77.9	59.2
Aux Htg	0.0	0	0.0	0.0	Supply	5,606	0	Clg Sqft/Ton	303.26	Return	77.9	64.5
Preheat	-131.0	3,600	23.0	55.8	Mincfm	0	0	Clg Btuh/Sqft	39.57	Ret/OA	91.5	23.0
Reheat	-0.0	0	0.0	0.0	Return	5,606	0	No. People	240	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	3,600	0	Htg % OA	0.0	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	0.00	Fn BldTD	0.0	0.0
Total	-274.4				Auxil	0	0	Htg Btuh/Sqft	-33.24	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-117,768	0.0	-63,177	0.0	-64,000	0.0	-64,481	0.0	-64,762	0.0
2	32.9	30.7	-117,768	0.0	-64,522	0.0	-65,327	0.0	-65,798	0.0	-66,073	0.0
3	33.1	31.3	-117,768	0.0	-65,709	0.0	-66,497	0.0	-66,957	0.0	-67,226	0.0
4	33.9	32.1	-117,768	0.0	-65,185	0.0	-65,954	0.0	-66,405	0.0	-66,667	0.0
5	35.2	33.5	-111,437	0.0	-66,653	0.0	-67,406	0.0	-67,846	0.0	-68,104	0.0
6	37.0	35.4	-65,764	0.0	-67,010	0.0	-67,747	0.0	-68,178	0.0	-68,429	0.0
7	39.0	37.6	-65,544	0.0	-65,289	0.0	-66,010	0.0	-66,431	0.0	-66,677	0.0
8	41.3	40.1	-64,838	0.0	-64,830	0.0	-65,535	0.0	-65,947	0.0	-66,187	0.0
9	43.7	42.5	-50,971	0.0	-56,545	0.0	-57,234	0.0	-57,637	0.0	-57,873	0.0
10	46.1	44.0	-36,910	0.0	-51,817	0.0	-52,491	0.0	-52,884	0.0	-53,115	0.0
11	48.4	45.0	-26,164	0.0	-46,574	0.0	-47,233	0.0	-47,619	0.0	-47,844	0.0
12	50.5	45.6	-18,486	0.0	-42,670	0.0	-43,314	0.0	-43,690	0.0	-43,911	0.0
13	52.2	46.1	-13,230	0.0	-40,074	0.0	-40,704	0.0	-41,072	0.0	-41,288	0.0
14	53.5	46.4	-7,696	0.0	-35,452	0.0	-36,069	0.0	-36,428	0.0	-36,639	0.0
15	54.3	46.3	-3,530	0.0	-33,472	0.0	-34,074	0.0	-34,426	0.0	-34,631	0.0
16	54.6	46.1	-3,762	0.0	-31,785	0.0	-32,373	0.0	-32,717	0.0	-32,918	0.0
17	54.0	45.9	-6,416	0.0	-33,014	0.0	-33,589	0.0	-33,926	0.0	-34,122	0.0
18	52.5	45.0	-12,022	0.0	-34,164	0.0	-34,727	0.0	-35,056	0.0	-35,248	0.0
19	50.1	44.8	-19,402	0.0	-35,876	0.0	-36,425	0.0	-36,747	0.0	-36,934	0.0
20	47.1	43.3	-25,767	0.0	-39,855	0.0	-40,393	0.0	-40,707	0.0	-40,891	0.0
21	43.7	40.4	-32,656	0.0	-44,943	0.0	-45,468	0.0	-45,776	0.0	-45,955	0.0
22	40.4	37.3	-37,929	0.0	-50,669	0.0	-51,184	0.0	-51,484	0.0	-51,660	0.0
23	37.3	34.9	-43,993	0.0	-54,984	0.0	-55,488	0.0	-55,782	0.0	-55,953	0.0
24	34.9	32.6	-47,958	0.0	-60,173	0.0	-60,665	0.0	-60,953	0.0	-61,120	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-49,452	0.0	-50,602	0.0	-51,073	0.0	-51,347	0.0	-51,506	0.0
2	39.7	37.1	-53,273	0.0	-55,006	0.0	-55,467	0.0	-55,735	0.0	-55,891	0.0
3	37.8	35.1	-56,448	0.0	-58,322	0.0	-58,773	0.0	-59,035	0.0	-59,188	0.0
4	36.3	33.8	-59,518	0.0	-59,974	0.0	-60,415	0.0	-60,671	0.0	-60,820	0.0
5	35.1	32.6	-62,174	0.0	-64,041	0.0	-64,472	0.0	-64,723	0.0	-64,869	0.0
6	34.4	32.0	-62,755	0.0	-65,572	0.0	-65,994	0.0	-66,239	0.0	-66,382	0.0
7	34.1	31.9	-62,893	0.0	-68,436	0.0	-68,848	0.0	-69,088	0.0	-69,227	0.0
8	34.6	32.4	-58,587	0.0	-66,995	0.0	-67,397	0.0	-67,633	0.0	-67,768	0.0
9	36.0	33.8	-43,167	0.0	-59,457	0.0	-59,852	0.0	-60,081	0.0	-60,215	0.0
10	38.2	34.7	-29,998	0.0	-56,473	0.0	-56,858	0.0	-57,083	0.0	-57,213	0.0
11	40.9	36.2	-21,250	0.0	-53,413	0.0	-53,790	0.0	-54,009	0.0	-54,137	0.0
12	43.9	37.4	-12,504	0.0	-49,951	0.0	-50,319	0.0	-50,533	0.0	-50,658	0.0
13	46.9	39.4	-7,368	0.0	-44,059	0.0	-44,419	0.0	-44,628	0.0	-44,750	0.0
14	49.7	41.4	-2,170	0.0	-39,775	0.0	-40,128	0.0	-40,332	0.0	-40,451	0.0
15	51.8	42.8	0	0.0	-35,508	0.0	-35,851	0.0	-36,051	0.0	-36,168	0.0
16	53.2	43.9	0	0.0	-34,678	0.0	-35,015	0.0	-35,210	0.0	-35,324	0.0
17	53.7	44.2	0	0.0	-33,176	0.0	-33,505	0.0	-33,695	0.0	-33,806	0.0
18	53.4	44.4	-6,507	0.0	-34,034	0.0	-34,354	0.0	-34,541	0.0	-34,650	0.0
19	52.7	44.4	-14,546	0.0	-34,506	0.0	-34,820	0.0	-35,003	0.0	-35,109	0.0
20	51.5	45.2	-21,656	0.0	-37,676	0.0	-37,982	0.0	-38,161	0.0	-38,264	0.0
21	50.0	44.6	-27,857	0.0	-39,287	0.0	-39,587	0.0	-39,762	0.0	-39,864	0.0
22	48.1	43.3	-33,284	0.0	-42,676	0.0	-42,970	0.0	-43,140	0.0	-43,240	0.0
23	46.1	41.8	-39,614	0.0	-45,263	0.0	-45,550	0.0	-45,717	0.0	-45,813	0.0
24	43.9	40.1	-43,575	0.0	-48,059	0.0	-48,339	0.0	-48,503	0.0	-48,598	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-19,246	0.0	0	0.0	-24,181	0.0	-24,098	0.0	-24,049	0.0
2	48.7 44.6	-23,306	0.0	0	0.0	-29,042	0.0	-28,960	0.0	-28,913	0.0
3	46.6 42.9	-26,730	0.0	0	0.0	-33,190	0.0	-33,110	0.0	-33,064	0.0
4	44.9 41.4	-30,114	0.0	0	0.0	-36,205	0.0	-36,126	0.0	-36,081	0.0
5	43.9 40.8	-33,039	0.0	0	0.0	-38,775	0.0	-38,699	0.0	-38,654	0.0
6	43.5 40.8	-35,004	0.0	-27,002	0.0	-41,507	0.0	-41,431	0.0	-41,388	0.0
7	44.0 41.4	-35,004	0.0	-41,755	0.0	-41,629	0.0	-41,556	0.0	-41,513	0.0
8	45.4 42.7	-20,875	0.0	-35,280	0.0	-35,158	0.0	-35,087	0.0	-35,045	0.0
9	47.7 44.3	-6,747	0.0	-29,812	0.0	-29,692	0.0	-29,622	0.0	-29,581	0.0
10	50.6 45.8	0	0.0	-23,621	0.0	-23,505	0.0	-23,436	0.0	-23,396	0.0
11	53.9 47.4	0	0.0	-16,522	0.0	-16,407	0.0	-16,340	0.0	-16,302	0.0
12	57.4 49.0	0	0.0	-11,439	0.0	-11,326	0.0	-11,262	0.0	-11,223	0.0
13	60.7 50.8	0	0.0	-6,836	0.0	-6,726	0.0	-6,662	0.0	-6,625	0.0
14	63.6 52.7	0	0.0	-1,578	0.0	-1,471	0.0	-1,408	0.0	-1,371	0.0
15	65.9 53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.0	-2,167	0.0	-1,478	0.0	-1,077	0.0	-842	0.0
23	57.1 51.9	0	0.0	-15,021	0.0	-14,933	0.0	-14,882	0.0	-14,853	0.0
24	54.2 49.4	0	0.0	-20,951	0.0	-20,866	0.0	-20,817	0.0	-20,787	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2 51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5 50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2 51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9 51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9 52.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	58.9 53.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5 57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	7.0	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	6.4	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9 61.7	0	5.1	0	1.5	0	1.6	0	1.8	0	1.9
19	73.7 62.0	0	3.8	0	1.6	0	1.6	0	1.7	0	1.7
20	72.1 62.4	0	2.7	0	1.3	0	1.3	0	1.3	0	1.3
21	70.2 63.3	0	1.9	0	1.1	0	1.1	0	1.1	0	1.1
22	68.0 62.5	0	1.3	0	0.5	0	0.5	0	0.5	0	0.5
23	65.7 60.5	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton
1	68.2	63.5	0	1.8	0	1.2	0	1.2	0	1.2	0	1.2
2	65.7	61.5	0	1.6	0	0.5	0	0.5	0	0.5	0	0.5
3	63.6	59.7	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	7.7	0	0.6	0	0.6	0	0.6	0	0.6
12	74.3	60.9	0	9.7	0	2.0	0	2.0	0	2.0	0	2.0
13	78.5	63.7	0	12.4	0	3.6	0	3.6	0	3.6	0	3.6
14	81.9	65.3	0	12.8	0	5.6	0	5.6	0	5.6	0	5.6
15	84.1	66.9	0	15.4	0	6.5	0	6.5	0	6.5	0	6.5
16	84.9	67.1	0	15.2	0	7.2	0	7.1	0	7.1	0	7.1
17	84.6	67.3	0	14.2	0	7.8	0	7.7	0	7.7	0	7.7
18	83.8	67.1	0	11.7	0	7.9	0	7.9	0	7.9	0	7.9
19	82.4	67.5	0	9.5	0	6.8	0	6.8	0	6.8	0	6.8
20	80.6	68.9	0	7.8	0	6.6	0	6.6	0	6.6	0	6.6
21	78.5	71.0	0	6.8	0	6.2	0	6.2	0	6.2	0	6.2
22	76.1	69.9	0	5.3	0	4.4	0	4.4	0	4.4	0	4.4
23	73.4	68.0	0	4.2	0	3.0	0	3.0	0	3.0	0	3.0
24	70.8	65.5	0	2.8	0	1.8	0	1.8	0	1.8	0	1.8

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton	Htg	Btuh Clg Ton
1	74.7	70.1	0	7.4	0	4.7	0	4.7	0	4.7	0	4.7
2	72.6	68.4	0	6.8	0	3.5	0	3.5	0	3.5	0	3.5
3	70.9	67.3	0	5.9	0	2.6	0	2.6	0	2.6	0	2.6
4	69.6	66.5	0	5.3	0	1.8	0	1.8	0	1.8	0	1.8
5	68.7	65.8	0	4.9	0	1.3	0	1.3	0	1.3	0	1.3
6	68.5	65.7	0	4.6	0	1.0	0	1.0	0	1.0	0	1.0
7	69.0	66.3	0	7.0	0	1.8	0	1.8	0	1.8	0	1.8
8	70.6	66.9	0	9.7	0	2.7	0	2.7	0	2.7	0	2.7
9	73.0	67.7	0	12.3	0	3.9	0	3.9	0	3.9	0	3.9
10	76.1	68.1	0	15.9	0	5.4	0	5.4	0	5.4	0	5.4
11	79.5	69.1	0	18.5	0	7.2	0	7.2	0	7.2	0	7.2
12	82.9	70.1	0	20.7	0	8.9	0	8.9	0	8.9	0	8.9
13	86.0	71.0	0	22.5	0	10.7	0	10.7	0	10.7	0	10.7
14	88.4	72.5	0	23.8	0	15.8	0	15.8	0	15.8	0	15.8
15	90.0	74.0	0	24.3	0	18.9	0	18.9	0	18.9	0	18.9
16	90.5	73.7	0	24.2	0	17.0	0	17.0	0	17.0	0	17.0
17	90.3	74.2	0	23.3	0	18.1	0	18.1	0	18.1	0	18.1
18	89.4	73.9	0	20.4	0	16.8	0	16.8	0	16.8	0	16.8
19	88.1	74.5	0	18.5	0	15.4	0	15.4	0	15.4	0	15.4
20	86.4	75.3	0	16.2	0	13.7	0	13.7	0	13.7	0	13.7
21	84.3	76.5	0	14.9	0	13.3	0	13.3	0	13.3	0	13.3
22	81.9	75.7	0	12.8	0	11.3	0	11.3	0	11.3	0	11.3
23	79.5	74.0	0	11.2	0	8.7	0	8.7	0	8.7	0	8.7
24	77.0	72.1	0	9.6	0	6.6	0	6.6	0	6.6	0	6.6

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	73.7	70.5		0	8.2			0	3.8			0	3.8			0	3.8			0	3.8	
2	72.4	69.4		0	7.3			0	3.1			0	3.1			0	3.1			0	3.1	
3	71.3	68.4		0	6.5			0	2.2			0	2.2			0	2.2			0	2.2	
4	70.5	67.7		0	6.2			0	1.7			0	1.7			0	1.7			0	1.7	
5	70.0	67.4		0	5.7			0	1.5			0	1.5			0	1.5			0	1.5	
6	69.9	67.5		0	5.6			0	1.2			0	1.2			0	1.2			0	1.2	
7	70.3	68.0		0	7.9			0	1.9			0	1.9			0	1.9			0	1.9	
8	71.7	69.0		0	10.4			0	3.4			0	3.4			0	3.4			0	3.4	
9	73.7	69.5		0	12.9			0	4.8			0	4.8			0	4.8			0	4.8	
10	76.2	70.6		0	15.4			0	6.6			0	6.6			0	6.6			0	6.6	
11	78.9	71.8		0	18.3			0	8.1			0	8.1			0	8.1			0	8.1	
12	81.4	73.0		0	21.5			0	10.4			0	10.4			0	10.4			0	10.4	
13	83.4	74.4		0	22.8			0	11.7			0	11.7			0	11.7			0	11.7	
14	84.8	74.8		0	23.8			0	13.4			0	13.2			0	13.2			0	13.2	
15	85.2	75.0		0	24.3			0	16.2			0	16.2			0	16.2			0	16.2	
16	85.1	75.0		0	24.1			0	15.7			0	15.7			0	15.7			0	15.7	
17	84.6	74.7		0	23.4			0	14.7			0	14.7			0	14.7			0	14.7	
18	83.8	74.6		0	20.8			0	13.8			0	13.8			0	13.8			0	13.8	
19	82.7	74.6		0	19.2			0	13.3			0	13.3			0	13.3			0	13.3	
20	81.4	74.4		0	16.8			0	11.2			0	11.2			0	11.2			0	11.2	
21	79.9	74.9		0	14.6			0	10.0			0	10.0			0	10.0			0	10.0	
22	78.4	74.0		0	12.8			0	8.2			0	8.2			0	8.2			0	8.2	
23	76.8	72.7		0	11.3			0	6.3			0	6.3			0	6.3			0	6.3	
24	75.2	71.6		0	10.1			0	5.0			0	5.0			0	5.0			0	5.0	

August			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	75.0	72.0		0	7.6			0	4.7			0	4.7			0	4.7			0	4.7	
2	73.2	70.3		0	6.8			0	3.5			0	3.5			0	3.5			0	3.5	
3	71.7	68.9		0	6.1			0	2.9			0	2.9			0	2.9			0	2.9	
4	70.4	67.8		0	5.5			0	2.0			0	2.0			0	2.0			0	2.0	
5	69.5	66.8		0	4.5			0	1.5			0	1.5			0	1.5			0	1.5	
6	68.9	66.4		0	4.9			0	1.0			0	1.0			0	1.0			0	1.0	
7	68.7	66.4		0	5.9			0	1.0			0	1.0			0	1.0			0	1.0	
8	69.2	66.8		0	9.1			0	2.2			0	2.2			0	2.2			0	2.2	
9	70.8	67.7		0	11.9			0	3.2			0	3.2			0	3.2			0	3.2	
10	73.2	67.7		0	14.6			0	4.2			0	4.2			0	4.2			0	4.2	
11	76.2	68.8		0	17.6			0	5.5			0	5.5			0	5.5			0	5.5	
12	79.3	70.3		0	20.2			0	7.5			0	7.5			0	7.5			0	7.5	
13	82.3	72.2		0	23.3			0	9.9			0	9.9			0	9.9			0	9.9	
14	84.7	73.7		0	24.3			0	11.5			0	11.5			0	11.5			0	11.5	
15	86.3	74.6		0	24.9			0	15.3			0	15.2			0	15.2			0	15.2	
16	86.8	75.1		0	24.6			0	16.2			0	16.2			0	16.2			0	16.2	
17	86.6	75.1		0	22.3			0	15.6			0	15.6			0	15.6			0	15.6	
18	86.0	75.3		0	20.8			0	15.8			0	15.8			0	15.8			0	15.8	
19	85.1	76.0		0	19.1			0	13.9			0	13.9			0	13.9			0	13.9	
20	83.8	76.8		0	16.5			0	13.2			0	13.2			0	13.2			0	13.2	
21	82.3	77.2		0	15.2			0	12.1			0	12.1			0	12.1			0	12.1	
22	80.6	76.3		0	12.2			0	10.4			0	10.4			0	10.4			0	10.4	
23	78.7	75.3		0	10.7			0	8.1			0	8.1			0	8.1			0	8.1	
24	76.8	73.7		0	9.5			0	6.4			0	6.4			0	6.4			0	6.4	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	69.6	67.4		0	3.2		0	1.6		0	1.6		0	1.5		0	1.5
2	67.6	65.0		0	2.7		0	0.9		0	0.8		0	0.8		0	0.8
3	65.8	63.4		0	2.0		0	0.2		0	0.2		0	0.1		0	0.0
4	64.3	62.2		0	1.6		0	0.0		0	0.0		0	0.0		0	0.0
5	63.1	61.1		0	1.3		0	0.0		0	0.0		0	0.0		0	0.0
6	62.4	60.3		0	1.3		0	0.0		0	0.0		0	0.0		0	0.0
7	62.2	60.2		0	1.5		0	0.0		0	0.0		0	0.0		0	0.0
8	62.9	60.9		0	3.3		0	0.0		0	0.0		0	0.0		0	0.0
9	64.7	61.8		0	6.0		0	0.0		0	0.0		0	0.0		0	0.0
10	67.6	62.1		0	8.3		0	0.0		0	0.0		0	0.0		0	0.0
11	71.1	63.1		0	9.4		0	1.0		0	0.8		0	0.7		0	0.6
12	74.8	64.6		0	11.3		0	3.2		0	3.2		0	3.1		0	3.1
13	78.3	66.7		0	13.9		0	4.4		0	4.4		0	4.3		0	4.3
14	81.2	68.4		0	17.2		0	6.3		0	6.2		0	6.2		0	6.2
15	83.0	70.0		0	17.7		0	7.8		0	7.8		0	7.7		0	7.7
16	83.7	70.5		0	17.5		0	8.1		0	8.1		0	8.1		0	8.0
17	83.4	70.5		0	15.2		0	8.2		0	8.2		0	8.1		0	8.1
18	82.8	70.9		0	13.2		0	8.2		0	8.2		0	8.2		0	8.2
19	81.6	72.7		0	11.8		0	7.8		0	7.8		0	7.7		0	7.7
20	80.1	74.7		0	10.7		0	7.6		0	7.6		0	7.6		0	7.6
21	78.3	74.1		0	8.9		0	6.4		0	6.4		0	6.3		0	6.3
22	76.3	72.4		0	6.5		0	4.9		0	4.8		0	4.8		0	4.8
23	74.1	70.7		0	4.8		0	3.5		0	3.5		0	3.5		0	3.5
24	71.8	68.9		0	3.8		0	2.4		0	2.4		0	2.4		0	2.4

October			----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
Hour	OADB	OAWB	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	52.2	50.5		0	0.0		0	0.0		0	0.0		0	0.0		-1,618	0.0
2	50.1	48.6		0	0.0		0	0.0		0	0.0		-14,464	0.0		-21,118	0.0
3	48.4	46.9		0	0.0		0	0.0		-23,539	0.0		-24,630	0.0		-25,242	0.0
4	47.1	45.8		0	0.0		0	0.0		-26,947	0.0		-27,962	0.0		-28,561	0.0
5	46.3	44.8		0	0.0		0	0.0		-30,069	0.0		-31,063	0.0		-31,649	0.0
6	46.0	44.5		0	0.0		0	0.0		-33,719	0.0		-34,691	0.0		-35,264	0.0
7	46.8	45.3		0	0.0		0	0.0		-33,642	0.0		-34,592	0.0		-35,153	0.0
8	48.9	47.5		0	0.0		-7,498	0.0		-27,786	0.0		-28,716	0.0		-29,265	0.0
9	52.2	49.9		0	0.0		-18,947	0.0		-20,487	0.0		-21,397	0.0		-21,933	0.0
10	56.2	52.5		0	0.0		-13,343	0.0		-14,850	0.0		-15,739	0.0		-16,264	0.0
11	60.4	54.4		0	0.0		-4,765	0.0		-6,238	0.0		-7,107	0.0		-7,621	0.0
12	64.4	56.0		0	0.0		0	0.0		0	0.0		-1,365	0.0		-1,866	0.0
13	67.7	57.3		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
14	69.8	58.2		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
15	70.6	58.1		0	1.2		0	0.0		0	0.0		0	0.0		0	0.0
16	70.3	57.5		0	3.8		0	0.0		0	0.0		0	0.0		0	0.0
17	69.5	57.3		0	3.2		0	0.0		0	0.0		0	0.0		0	0.0
18	68.2	57.7		0	2.3		0	0.0		0	0.0		0	0.0		0	0.0
19	66.5	60.6		0	1.5		0	0.0		0	0.0		0	0.0		0	0.0
20	64.4	60.8		0	0.8		0	0.0		0	0.0		0	0.0		0	0.0
21	62.1	59.4		0	0.3		0	0.0		0	0.0		0	0.0		0	0.0
22	59.6	57.3		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
23	57.0	55.1		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0
24	54.5	52.7		0	0.0		0	0.0		0	0.0		0	0.0		0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	52.0	49.2		-6,670		0.0		0		0.0		-21,930		0.0		-22,616		0.0		-23,018		0.0
2	49.4	47.3		-23,948		0.0		0		0.0		-26,721		0.0		-27,392		0.0		-27,785		0.0
3	47.2	45.3		-27,282		0.0		0		0.0		-29,768		0.0		-30,424		0.0		-30,809		0.0
4	45.3	43.4		-30,631		0.0		0		0.0		-34,325		0.0		-34,967		0.0		-35,343		0.0
5	43.9	42.2		-33,605		0.0		-8,967		0.0		-36,922		0.0		-37,550		0.0		-37,917		0.0
6	43.0	41.4		-34,045		0.0		-38,719		0.0		-39,764		0.0		-40,379		0.0		-40,739		0.0
7	42.7	41.2		-33,979		0.0		-40,933		0.0		-41,959		0.0		-42,560		0.0		-42,912		0.0
8	43.5	42.0		-29,416		0.0		-41,361		0.0		-42,363		0.0		-42,951		0.0		-43,296		0.0
9	45.9	44.0		-13,504		0.0		-33,674		0.0		-34,654		0.0		-35,230		0.0		-35,567		0.0
10	49.4	46.6		0		0.0		-27,684		0.0		-28,643		0.0		-29,205		0.0		-29,535		0.0
11	53.8	48.6		0		0.0		-22,313		0.0		-23,250		0.0		-23,801		0.0		-24,124		0.0
12	58.4	50.6		0		0.0		-17,767		0.0		-18,685		0.0		-19,223		0.0		-19,538		0.0
13	62.8	52.6		0		0.0		-11,976		0.0		-12,873		0.0		-13,399		0.0		-13,707		0.0
14	66.3	54.5		0		0.0		-5,167		0.0		-6,044		0.0		-6,557		0.0		-6,858		0.0
15	68.7	55.7		0		0.0		0		0.0		-1,456		0.0		-1,958		0.0		-2,253		0.0
16	69.5	56.1		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
17	69.2	55.8		0		0.0		0		0.0		0		0.0		0		0.0		0		0.0
18	68.3	57.0		0		0.0		0		0.0		-736		0.0		-2,004		0.0		-2,424		0.0
19	66.9	59.4		0		0.0		-1,072		0.0		-3,440		0.0		-3,899		0.0		-4,168		0.0
20	65.0	59.4		0		0.0		-5,901		0.0		-6,666		0.0		-7,115		0.0		-7,379		0.0
21	62.8	58.2		0		0.0		-7,636		0.0		-8,385		0.0		-8,824		0.0		-9,081		0.0
22	60.2	56.1		0		0.0		-12,285		0.0		-13,017		0.0		-13,446		0.0		-13,698		0.0
23	57.5	54.0		0		0.0		-15,003		0.0		-15,720		0.0		-16,140		0.0		-16,387		0.0
24	54.7	51.7		0		0.0		-19,670		0.0		-20,370		0.0		-20,781		0.0		-21,022		0.0

December			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	44.9	42.5	-35,099			0.0	-40,817			0.0	-41,829			0.0	-42,423			0.0	-42,770			0.0
2	43.2	41.1	-38,202			0.0	-44,319			0.0	-45,310			0.0	-45,890			0.0	-46,230			0.0
3	41.8	39.8	-41,558			0.0	-46,480			0.0	-47,449			0.0	-48,017			0.0	-48,349			0.0
4	40.7	38.7	-44,292			0.0	-48,884			0.0	-49,831			0.0	-50,386			0.0	-50,712			0.0
5	40.1	38.4	-45,509			0.0	-51,037			0.0	-51,964			0.0	-52,506			0.0	-52,825			0.0
6	39.9	38.4	-47,428			0.0	-53,412			0.0	-54,319			0.0	-54,850			0.0	-55,161			0.0
7	40.5	39.0	-47,352			0.0	-54,508			0.0	-55,395			0.0	-55,914			0.0	-56,218			0.0
8	42.2	40.7	-44,971			0.0	-54,763			0.0	-55,630			0.0	-56,139			0.0	-56,436			0.0
9	44.9	43.4	-31,923			0.0	-47,187			0.0	-48,034			0.0	-48,531			0.0	-48,823			0.0
10	48.2	45.8	-20,428			0.0	-40,819			0.0	-41,648			0.0	-42,135			0.0	-42,419			0.0
11	51.7	48.3	-10,175			0.0	-34,667			0.0	-35,479			0.0	-35,953			0.0	-36,232			0.0
12	55.0	50.7	-3,610			0.0	-29,314			0.0	-30,108			0.0	-30,573			0.0	-30,844			0.0
13	57.7	52.0	0			0.0	-25,024			0.0	-25,799			0.0	-26,253			0.0	-26,520			0.0
14	59.5	52.6	0			0.0	-20,831			0.0	-21,590			0.0	-22,034			0.0	-22,294			0.0
15	60.1	52.7	0			0.0	-18,781			0.0	-19,522			0.0	-19,956			0.0	-20,211			0.0
16	59.9	52.6	0			0.0	-18,326			0.0	-19,051			0.0	-19,476			0.0	-19,724			0.0
17	59.2	52.1	0			0.0	-18,407			0.0	-19,115			0.0	-19,530			0.0	-19,774			0.0
18	58.2	51.8	0			0.0	-20,160			0.0	-20,853			0.0	-21,259			0.0	-21,497			0.0
19	56.8	52.2	0			0.0	-22,097			0.0	-22,774			0.0	-23,171			0.0	-23,404			0.0
20	55.0	51.4	0			0.0	-25,457			0.0	-26,119			0.0	-26,508			0.0	-26,735			0.0
21	53.1	50.1	0			0.0	-26,769			0.0	-27,417			0.0	-27,796			0.0	-28,019			0.0
22	51.0	48.1	-20,767			0.0	-31,351			0.0	-31,985			0.0	-32,356			0.0	-32,574			0.0
23	48.9	46.2	-25,788			0.0	-34,633			0.0	-35,253			0.0	-35,617			0.0	-35,830			0.0
24	46.9	44.1	-31,071			0.0	-37,538			0.0	-38,145			0.0	-38,500			0.0	-38,709			0.0

01 Card - Job Information

Project: ENERGY STUDY OF COOLING PLANT
Location: FORT GORDON, GEORGIA
Client: U. S. ARMY CORPS OF ENGINEERS
Program User: BON
Comments: BUILDING 28414, CHAPEL

-----CARD 08-- Climatic Information-----
Summer Winter Summer Summer Winter Summer Winter
Weather Clearness Clearness Design Design Design Building Ground Ground
Code Number Number Dry Bulb Wet Bulb Dry Bulb Orientation Reflect Reflect
AUGUSTA 90

-----CARD 09-- Load Simulation Periods-----
1st Month Last Month Peak 1st Month Last Month 1st Month Last Month
Cooling Cooling Cooling Summer Summer Daylight Daylight
Simulation Simulation Load Hr Period Period Savings Savings
APR OCT

-----CARD 10 -- Load Simulation Parameters-----
Cooling Heating Airflow Airflow Room Put Wall
Load Load Ventilation Input Output Circulation RA Load
Method Method Method Units Units Rate to Room
CLTD-CLF TETD-TA1 OAHIGH ACTUAL ACTUAL MED-RCR NO

----- Load Section Alternative #1 -----

---- Load Alternative ----
Number Description
1 BUILDING 28414 (CHAPEL)

-----CARD 20-- General Room Parameters-----
Zone
Room Reference Room Floor Floor Const Plenum Acoustic Floor to Duplicate Duplicate Perimeter
Number Number Descrip Length Width Type Height Resistance Height Floors Rooms per Depth
1 1 LOW ROOF PART 5604 3.0 12.0

-----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	1	HIGH ROOF NAVE	2650		6	2.0		23.5			

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			MED70	NO
2		50								MED70	YES

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				176			
2	1		25.5	40		170	270	64	
2	2		25.5	40		170	0	64	
2	3		25.5	25		170	180	40	
2	4		25.5	25		170	90	40	

-----CARD 23-- Skylight Parameters -----

Room Number	Roof Number	Skylight Length	Skylight Width	Pct Glass or No. of Windows	Skylight U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
2	1	11.1	7	1	.53	.89					
2	2	11.1	7	1	.53	.89					
2	3	6.25	7	1	.53	.89					
2	4	6.25	7	1	.53	.89					

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	254.7	12		194	0			
1	2	85.0	12		194	90			
1	3	69.0	12		194	180			
1	4	96.0	12		194	270			
2	1	41.1	12		194	0			
2	2	15	12		194	90			
2	3	52	12		194	180			

-----CARD 24-- Wall Parameters -----

Room	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Ground
Number	Number	Length	Height	U-Value	Constuc	Type	Direction	Tilt	Alpha Reflectance
2	4	18	12		194		270		Multiplier

-----CARD 25-- Wall/Glass Parameters -----

Room	Wall	Glass	Glass	Pct Glass	Glass	Shading	External	Internal	Percent	Visible	Inside
Number	Number	Length	Width	or No. of	U-Value	Coefficient	Shading	Shading	Solar to	Transmittance	Visible
1	1	662	1	1	1.09	.56	4		Ret. Air		Reflectance
1	2	44	1	1	1.09	.56					
1	3	4.5	5.5	1	1.09	.56	5				
1	4	26.5	8.0	1	1.09	.56	3				

-----CARD 26-- Schedules -----

Room	People	Lights	Ventilation	Infiltration	Reheat	Cooling	Heating	Auxiliary	Room	Daylighting
Number					Minimum	Fans	Fan	Fan	Exhaust	Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room	People	People	People	People	Lighting	Lighting	Lighting	Percent	--- Daylighting ---
Number	Value	Units	Sensible	Latent	Value	Units	Fixture	Ballast	Lights to
1	40	PEOPLE	255	325	8900	WATTS	ASHRAE2	Factor	Ret. Air
2	200	PEOPLE	255	255	7380	WATTS	INCAND		Reference
									Point 1
									Point 2

-----CARD 28--- Miscellaneous Equipment -----

Room	Misc	Energy	Energy	Energy	Percent	Percent	Percent	Percent	Percent
Number	Equipment	Equipment	Consump	Consump	Schedule	Meter	of Load	Misc. Load	Misc. Sens
1	1	KITCHEN EQUIP	1.47	KW	FGHEAT				
1	2	P.C.'S AND PRITR	4715	BTUH	FGHEAT				
1	3	TV, VCR, TYPWTR	435	WATTS	FGHEAT				
1	4	FRIG	920	BTUH	FGHEAT				

-----CARD 29--- Room Airflows -----

Room	---Cooling---	---Heating---	---Cooling---	---Heating---	---Reheat Minimum---
Number	Value	Units	Value	Units	Value
1	15	CFM-P	15	CFM-P	.08
					CFM-SF
					.1
					CFM-SF


```

-----CARD 29--- Room Airflows -----
-----Ventilation-----
Room   ---Cooling---   ---Heating---
Number Value    Units  Value    Units
2      15        CFM-P  15      CFM-P
-----Cooling---   ---Heating---
Value    Units  Value    Units
.04      CFM-SF .05      CFM-SF
-----Infiltration-----
Value    Units  Value    Units

```

```

-----CARD 30- Fan Airflows -----
-----Main-----
Room   ---Cooling---   ---Heating---
Number Value    Units  Value    Units
1      1          CFM-SF  1          CFM-SF
2      1          CFM-SF  1          CFM-SF
-----Cooling---   ---Heating---
Value    Units  Value    Units
-----Auxiliary-----
Value    Units  Value    Units
-----Room Exhaust--
Value    Units

```

```

-----CARD 33-- External Shading -----
-----OVERHANG-----
Shading Glass Above Projection Glass Projection
Type    Height Glass Out    Width Left
3        8.0      3.4
4        6.5      3
5        6.5      1
-----VERTICAL FINS-----
Left      Right      Adjacent
Projection Projection Projection Building
Out        Out        Flag

```

```

----- System Section Alternative #1 -----

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-----CARD 40--- System Type -----
-----OPTIONAL VENTILATION SYSTEM-----
System Ventil Fan
Set      System Deck Cooling Heating Cooling Heating Static
Number  Type Location SADBvh SADBvh Schedule Schedule Pressure
1        VAV

```

```

-----CARD 41-- Zone Assignment -----
System
Set      Ref #1      Ref #2      Ref #3      Ref #4      Ref #5      Ref #6
Number  Begin  End  Begin  End  Begin  End  Begin  End  Begin  End
1        1      1

```

-----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path

1

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHO FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

VAV VARIABLE AIR VOLUME

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHED FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**                                     **  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**                                     **  
**          by              **  
**                                     **  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT
FORT GORDON, GEORGIA
U. S. ARMY CORPS OF ENGINEERS
BON
BUILDING 25414 (8 BLDGS)

Weather File Code: AUGUSTA
Location: FORT GORDON, GEORGIA
Latitude: 33.0 (deg)
Longitude: 82.0 (deg)
Time Zone: 5
Elevation: 143 (ft)
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90
Winter Clearness Number: 0.90
Summer Design Dry Bulb: 95 (F)
Summer Design Wet Bulb: 76 (F)
Winter Design Dry Bulb: 23 (F)
Summer Ground Relectance: 0.20
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)
Air Specific Heat: 0.2444 (Btu/lbm/F)
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October
System Simulation Period: January To December
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8:40:57 8/17/94
Dataset Name: FGTYP544 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****

Peaked at Time ==>					Mo/Hr: 8/15					Mo/Hr: 6/17					Mo/Hr: 13/ 1				
Outside Air ==>					OADB/WB/HR: 97/ 76/105.0					OADB: 98					OADB: 23				
Space					Ret. Air					Net					Space				
Sens.+Lat.					Sensible					Total					Sensible				
(Btuh)					(Btuh)					Of Tot					Of Tot				
Envelope Loads					Latent					Of Tot					Of Tot				
Skylite Solr					(Btuh)					Of Tot					Of Tot				
Skylite Cond					(Btuh)					Of Tot					Of Tot				
Roof Cond					(Btuh)					Of Tot					Of Tot				
Glass Solar					(Btuh)					Of Tot					Of Tot				
Glass Cond					(Btuh)					Of Tot					Of Tot				
Wall Cond					(Btuh)					Of Tot					Of Tot				
Partition					(Btuh)					Of Tot					Of Tot				
Exposed Floor					(Btuh)					Of Tot					Of Tot				
Infiltration					(Btuh)					Of Tot					Of Tot				
Sub Total==>					(Btuh)					Of Tot					Of Tot				
Internal Loads					(Btuh)					Of Tot					Of Tot				
Lights					(Btuh)					Of Tot					Of Tot				
People					(Btuh)					Of Tot					Of Tot				
Misc					(Btuh)					Of Tot					Of Tot				
Sub Total==>					(Btuh)					Of Tot					Of Tot				
Ceiling Load					(Btuh)					Of Tot					Of Tot				
Outside Air					(Btuh)					Of Tot					Of Tot				
Sup. Fan Heat					(Btuh)					Of Tot					Of Tot				
Ret. Fan Heat					(Btuh)					Of Tot					Of Tot				
Duct Heat Pkup					(Btuh)					Of Tot					Of Tot				
OV/UNDR Sizing					(Btuh)					Of Tot					Of Tot				
Exhaust Heat					(Btuh)					Of Tot					Of Tot				
Terminal Bypass					(Btuh)					Of Tot					Of Tot				
Grand Total==>					(Btuh)					Of Tot					Of Tot				

-----COOLING COIL SELECTION-----										-----AREAS-----		
Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	4.6	54.8	43.1	2,030	84.4	69.9	87.0	63.8	62.1	81.3	2,030	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Totals	4.6	54.8								2,030	252	12

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	25.9	Type	Clg	Htg	
(Mbh)	(cfm)	Deg F	Deg F	Vent	525	525	Clg Cfm/Sqft	1.00	SADB	63.8	81.4	
Main Htg	-61.7	2,030	54.0	81.4	Infil	164	205	Clg Cfm/Ton	444.85	Plenum	80.1	64.8
Aux Htg	0.0	0	0.0	0.0	Supply	2,030	2,030	Clg Sqft/Ton	444.85	Return	80.1	64.8
Preheat	-22.1	2,030	54.0	63.8	Mincfm	0	0	Clg Btuh/Sqft	26.98	Ret/OA	84.4	54.0
Reheat	0.0	0	0.0	0.0	Return	2,030	2,030	No. People	35	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	525	525	Htg % OA	25.9	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-61.7				Auxil	0	0	Htg Btuh/Sqft	-30.40	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	33.4	31.1	-44,951		0.0		-41,463		0.0		-41,463		0.0		-41,463		0.0		-41,463		0.0	
2	32.9	30.7	-43,794		0.0		-42,170		0.0		-42,170		0.0		-42,170		0.0		-42,170		0.0	
3	33.1	31.3	-43,141		0.0		-42,335		0.0		-42,335		0.0		-42,335		0.0		-42,335		0.0	
4	33.9	32.1	-42,579		0.0		-41,432		0.0		-41,432		0.0		-41,432		0.0		-41,432		0.0	
5	35.2	33.5	-39,323		0.0		-40,970		0.0		-40,970		0.0		-40,970		0.0		-40,970		0.0	
6	37.0	35.4	-37,161		0.0		-39,899		0.0		-39,899		0.0		-39,899		0.0		-39,899		0.0	
7	39.0	37.6	-36,330		0.0		-38,051		0.0		-38,051		0.0		-38,051		0.0		-38,051		0.0	
8	41.3	40.1	-34,467		0.0		-36,056		0.0		-36,056		0.0		-36,056		0.0		-36,056		0.0	
9	43.7	42.5	-29,324		0.0		-32,430		0.0		-32,430		0.0		-32,430		0.0		-32,430		0.0	
10	46.1	44.0	-23,616		0.0		-29,776		0.0		-29,776		0.0		-29,776		0.0		-29,776		0.0	
11	48.4	45.0	-17,645		0.0		-26,410		0.0		-26,410		0.0		-26,410		0.0		-26,410		0.0	
12	50.5	45.6	-12,075		0.0		-23,846		0.0		-23,846		0.0		-23,846		0.0		-23,846		0.0	
13	52.2	46.1	-7,870		0.0		-21,151		0.0		-21,151		0.0		-21,151		0.0		-21,151		0.0	
14	53.5	46.4	-5,136		0.0		-19,267		0.0		-19,267		0.0		-19,267		0.0		-19,267		0.0	
15	54.3	46.3	-4,039		0.0		-18,339		0.0		-18,339		0.0		-18,339		0.0		-18,339		0.0	
16	54.6	46.1	-3,813		0.0		-17,572		0.0		-17,572		0.0		-17,572		0.0		-17,572		0.0	
17	54.0	45.9	-5,452		0.0		-18,554		0.0		-18,554		0.0		-18,554		0.0		-18,554		0.0	
18	52.5	45.0	-11,023		0.0		-20,861		0.0		-20,861		0.0		-20,861		0.0		-20,861		0.0	
19	50.1	44.8	-16,018		0.0		-23,616		0.0		-23,616		0.0		-23,616		0.0		-23,616		0.0	
20	47.1	43.3	-19,792		0.0		-26,749		0.0		-26,749		0.0		-26,749		0.0		-26,749		0.0	
21	43.7	40.4	-23,104		0.0		-30,354		0.0		-30,354		0.0		-30,354		0.0		-30,354		0.0	
22	40.4	37.3	-25,975		0.0		-33,812		0.0		-33,812		0.0		-33,812		0.0		-33,812		0.0	
23	37.3	34.9	-28,363		0.0		-36,775		0.0		-36,775		0.0		-36,775		0.0		-36,775		0.0	
24	34.9	32.6	-30,367		0.0		-39,498		0.0		-39,498		0.0		-39,498		0.0		-39,498		0.0	

February			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	41.7	38.6	-30,228		0.0		-33,089		0.0		-33,089		0.0		-33,089		0.0		-33,089		0.0	
2	39.7	37.1	-31,997		0.0		-35,157		0.0		-35,157		0.0		-35,157		0.0		-35,157		0.0	
3	37.8	35.1	-33,392		0.0		-37,277		0.0		-37,277		0.0		-37,277		0.0		-37,277		0.0	
4	36.3	33.8	-34,381		0.0		-38,740		0.0		-38,740		0.0		-38,740		0.0		-38,740		0.0	
5	35.1	32.6	-35,220		0.0		-40,525		0.0		-40,525		0.0		-40,525		0.0		-40,525		0.0	
6	34.4	32.0	-35,011		0.0		-41,468		0.0		-41,468		0.0		-41,468		0.0		-41,468		0.0	
7	34.1	31.9	-34,831		0.0		-42,311		0.0		-42,311		0.0		-42,311		0.0		-42,311		0.0	
8	34.6	32.4	-32,073		0.0		-41,524		0.0		-41,524		0.0		-41,524		0.0		-41,524		0.0	
9	36.0	33.8	-26,311		0.0		-38,641		0.0		-38,641		0.0		-38,641		0.0		-38,641		0.0	
10	38.2	34.7	-20,569		0.0		-36,055		0.0		-36,055		0.0		-36,055		0.0		-36,055		0.0	
11	40.9	36.2	-15,184		0.0		-32,972		0.0		-32,972		0.0		-32,972		0.0		-32,972		0.0	
12	43.9	37.4	-9,953		0.0		-29,925		0.0		-29,925		0.0		-29,925		0.0		-29,925		0.0	
13	46.9	39.4	-6,006		0.0		-25,549		0.0		-25,549		0.0		-25,549		0.0		-25,549		0.0	
14	49.7	41.4	-3,326		0.0		-22,560		0.0		-22,560		0.0		-22,560		0.0		-22,560		0.0	
15	51.8	42.8	-2,143		0.0		-20,054		0.0		-20,054		0.0		-20,054		0.0		-20,054		0.0	
16	53.2	43.9	-2,024		0.0		-18,978		0.0		-18,978		0.0		-18,978		0.0		-18,978		0.0	
17	53.7	44.2	-3,155		0.0		-18,290		0.0		-18,290		0.0		-18,290		0.0		-18,290		0.0	
18	53.4	44.4	-6,845		0.0		-18,720		0.0		-18,720		0.0		-18,720		0.0		-18,720		0.0	
19	52.7	44.4	-12,987		0.0		-21,225		0.0		-21,225		0.0		-21,225		0.0		-21,225		0.0	
20	51.5	45.2	-17,800		0.0		-22,715		0.0		-22,715		0.0		-22,715		0.0		-22,715		0.0	
21	50.0	44.6	-21,360		0.0		-24,663		0.0		-24,663		0.0		-24,663		0.0		-24,663		0.0	
22	48.1	43.3	-24,469		0.0		-26,552		0.0		-26,552		0.0		-26,552		0.0		-26,552		0.0	
23	46.1	41.8	-26,582		0.0		-28,710		0.0		-28,710		0.0		-28,710		0.0		-28,710		0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-15,715	0.0	-20,847	0.0	-20,850	0.0	-20,850	0.0	-20,850	0.0
2	48.7	44.6	-17,544	0.0	-23,806	0.0	-23,808	0.0	-23,808	0.0	-23,808	0.0
3	46.6	42.9	-19,236	0.0	-25,784	0.0	-25,784	0.0	-25,784	0.0	-25,784	0.0
4	44.9	41.4	-20,800	0.0	-27,848	0.0	-27,848	0.0	-27,848	0.0	-27,848	0.0
5	43.9	40.8	-21,302	0.0	-29,012	0.0	-29,012	0.0	-29,012	0.0	-29,012	0.0
6	43.5	40.8	-21,577	0.0	-30,098	0.0	-30,098	0.0	-30,098	0.0	-30,098	0.0
7	44.0	41.4	-20,721	0.0	-29,756	0.0	-29,756	0.0	-29,756	0.0	-29,756	0.0
8	45.4	42.7	-15,055	0.0	-26,788	0.0	-26,788	0.0	-26,788	0.0	-26,788	0.0
9	47.7	44.3	-8,599	0.0	-23,258	0.0	-23,258	0.0	-23,258	0.0	-23,258	0.0
10	50.6	45.8	-2,392	0.0	-19,105	0.0	-19,105	0.0	-19,105	0.0	-19,105	0.0
11	53.9	47.4	0	0.0	-14,798	0.0	-14,798	0.0	-14,798	0.0	-14,798	0.0
12	57.4	49.0	0	0.0	-10,270	0.0	-10,270	0.0	-10,270	0.0	-10,270	0.0
13	60.7	50.8	0	0.0	-6,302	0.0	-6,302	0.0	-6,302	0.0	-6,302	0.0
14	63.6	52.7	0	0.2	-3,128	0.0	-3,128	0.0	-3,128	0.0	-3,128	0.0
15	65.9	53.7	0	1.3	-906	0.0	-906	0.0	-906	0.0	-906	0.0
16	67.3	54.4	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	0.2	-884	0.0	-884	0.0	-884	0.0	-884	0.0
20	64.7	56.0	0	0.0	-5,675	0.0	-5,675	0.0	-5,675	0.0	-5,675	0.0
21	62.5	56.0	0	0.0	-8,538	0.0	-8,538	0.0	-8,538	0.0	-8,538	0.0
22	60.0	54.1	0	0.0	-11,555	0.0	-11,555	0.0	-11,555	0.0	-11,555	0.0
23	57.1	51.9	0	0.0	-14,508	0.0	-14,508	0.0	-14,508	0.0	-14,508	0.0
24	54.2	49.4	-10,955	0.0	-17,962	0.0	-17,962	0.0	-17,962	0.0	-17,962	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-2,469	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	-4,535	0.0	0	0.0	-4,533	0.0	-4,533	0.0	-4,533	0.0
3	57.0	53.5	-6,120	0.0	-6,525	0.0	-13,146	0.0	-13,146	0.0	-13,146	0.0
4	55.4	52.4	-7,198	0.0	-15,012	0.0	-15,007	0.0	-15,007	0.0	-15,007	0.0
5	54.2	51.4	-8,191	0.0	-16,489	0.0	-16,492	0.0	-16,492	0.0	-16,492	0.0
6	53.5	50.9	-8,497	0.0	-17,534	0.0	-17,534	0.0	-17,534	0.0	-17,534	0.0
7	53.2	51.1	-5,880	0.0	-17,448	0.0	-17,448	0.0	-17,448	0.0	-17,448	0.0
8	53.9	51.5	0	0.0	-14,877	0.0	-14,877	0.0	-14,877	0.0	-14,877	0.0
9	55.9	52.1	0	0.0	-11,715	0.0	-11,715	0.0	-11,715	0.0	-11,715	0.0
10	58.9	53.2	0	0.0	-6,962	0.0	-6,962	0.0	-6,962	0.0	-6,962	0.0
11	62.6	55.2	0	0.0	-2,377	0.0	-2,377	0.0	-2,377	0.0	-2,377	0.0
12	66.5	57.3	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	2.3	0	0.2	0	0.2	0	0.2	0	0.2
17	75.6	62.0	0	2.2	0	0.8	0	0.8	0	0.8	0	0.8
18	74.9	61.7	0	2.0	0	0.7	0	0.7	0	0.7	0	0.7
19	73.7	62.0	0	1.4	0	0.5	0	0.5	0	0.5	0	0.5
20	72.1	62.4	0	0.8	0	0.1	0	0.1	0	0.1	0	0.1
21	70.2	63.3	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	QAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	-10,208	0.0	-10,605	0.0	-10,605	0.0	-10,605	0.0
7	59.4	56.5	0	0.0	-9,264	0.0	-9,263	0.0	-9,263	0.0	-9,263	0.0
8	60.1	56.3	0	0.0	-6,872	0.0	-6,872	0.0	-6,872	0.0	-6,872	0.0
9	62.4	56.3	0	0.7	-3,112	0.0	-3,112	0.0	-3,112	0.0	-3,112	0.0
10	65.7	57.2	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	3.3	0	1.5	0	1.5	0	1.5	0	1.5
15	84.1	66.9	0	3.4	0	1.8	0	1.8	0	1.8	0	1.8
16	84.9	67.1	0	3.3	0	1.9	0	1.9	0	1.9	0	1.9
17	84.6	67.3	0	3.2	0	1.9	0	1.9	0	1.9	0	1.9
18	83.8	67.1	0	2.9	0	1.9	0	1.9	0	1.9	0	1.9
19	82.4	67.5	0	2.4	0	1.6	0	1.6	0	1.6	0	1.6
20	80.6	68.9	0	1.8	0	1.3	0	1.3	0	1.3	0	1.3
21	78.5	71.0	0	1.3	0	1.2	0	1.2	0	1.2	0	1.2
22	76.1	69.9	0	1.0	0	0.8	0	0.8	0	0.8	0	0.8
23	73.4	68.0	0	0.7	0	0.3	0	0.3	0	0.3	0	0.3
24	70.8	65.5	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0

June			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	QAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	1.5	0	0.6	0	0.7	0	0.7	0	0.7
2	72.6	68.4	0	1.3	0	0.3	0	0.3	0	0.3	0	0.3
3	70.9	67.3	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
4	69.6	66.5	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	2.9	0	1.3	0	1.3	0	1.3	0	1.3
11	79.5	69.1	0	3.5	0	1.7	0	1.7	0	1.7	0	1.7
12	82.9	70.1	0	3.9	0	2.2	0	2.2	0	2.2	0	2.2
13	86.0	71.0	0	4.3	0	2.6	0	2.6	0	2.6	0	2.6
14	88.4	72.5	0	4.5	0	3.1	0	3.1	0	3.1	0	3.1
15	90.0	74.0	0	4.6	0	3.5	0	3.5	0	3.5	0	3.5
16	90.5	73.7	0	4.6	0	3.3	0	3.3	0	3.3	0	3.3
17	90.3	74.2	0	4.5	0	3.4	0	3.4	0	3.4	0	3.4
18	89.4	73.9	0	4.1	0	3.3	0	3.3	0	3.3	0	3.3
19	88.1	74.5	0	3.7	0	3.1	0	3.1	0	3.1	0	3.1
20	86.4	75.3	0	3.0	0	2.6	0	2.6	0	2.6	0	2.6
21	84.3	76.5	0	2.6	0	2.5	0	2.5	0	2.5	0	2.5
22	81.9	75.7	0	2.3	0	2.2	0	2.2	0	2.2	0	2.2
23	79.5	74.0	0	2.0	0	1.7	0	1.7	0	1.7	0	1.7
24	77.0	72.1	0	1.8	0	1.2	0	1.2	0	1.2	0	1.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	1.8	0	0.4	0	0.5	0	0.5	0	0.5
2	72.4	69.4	0	1.4	0	0.2	0	0.2	0	0.2	0	0.2
3	71.3	68.4	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
4	70.5	67.7	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	3.0	0	1.6	0	1.6	0	1.6	0	1.6
11	78.9	71.8	0	3.4	0	1.9	0	1.9	0	1.9	0	1.9
12	81.4	73.0	0	3.9	0	2.5	0	2.5	0	2.5	0	2.5
13	83.4	74.4	0	4.2	0	2.8	0	2.8	0	2.8	0	2.8
14	84.8	74.8	0	4.4	0	3.1	0	3.1	0	3.1	0	3.1
15	85.2	75.0	0	4.5	0	3.2	0	3.2	0	3.2	0	3.2
16	85.1	75.0	0	4.5	0	3.1	0	3.1	0	3.1	0	3.1
17	84.6	74.7	0	4.4	0	3.0	0	3.0	0	3.0	0	3.0
18	83.8	74.6	0	4.1	0	2.9	0	2.9	0	2.9	0	2.9
19	82.7	74.6	0	3.7	0	2.7	0	2.7	0	2.7	0	2.7
20	81.4	74.4	0	3.1	0	2.3	0	2.3	0	2.3	0	2.3
21	79.9	74.9	0	2.6	0	1.9	0	1.9	0	1.9	0	1.9
22	78.4	74.0	0	2.3	0	1.6	0	1.6	0	1.6	0	1.6
23	76.8	72.7	0	2.1	0	1.1	0	1.1	0	1.1	0	1.1
24	75.2	71.6	0	1.9	0	0.8	0	0.8	0	0.8	0	0.8

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	1.8	0	0.6	0	0.7	0	0.7	0	0.7
2	73.2	70.3	0	1.4	0	0.3	0	0.3	0	0.3	0	0.3
3	71.7	68.9	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
4	70.4	67.8	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	2.8	0	0.1	0	0.1	0	0.1	0	0.1
11	76.2	68.8	0	3.3	0	1.4	0	1.4	0	1.4	0	1.4
12	79.3	70.3	0	3.7	0	1.9	0	1.9	0	1.9	0	1.9
13	82.3	72.2	0	4.2	0	2.4	0	2.4	0	2.4	0	2.4
14	84.7	73.7	0	4.5	0	2.8	0	2.8	0	2.8	0	2.8
15	86.3	74.6	0	4.6	0	3.1	0	3.1	0	3.1	0	3.1
16	86.8	75.1	0	4.5	0	3.2	0	3.2	0	3.2	0	3.2
17	86.6	75.1	0	4.3	0	3.1	0	3.1	0	3.1	0	3.1
18	86.0	75.3	0	4.1	0	3.3	0	3.3	0	3.3	0	3.3
19	85.1	76.0	0	3.5	0	2.9	0	2.9	0	2.9	0	2.9
20	83.8	76.8	0	2.9	0	2.5	0	2.5	0	2.5	0	2.5
21	82.3	77.2	0	2.7	0	2.4	0	2.4	0	2.4	0	2.4
22	80.6	76.3	0	2.3	0	2.0	0	2.0	0	2.0	0	2.0
23	78.7	75.3	0	2.0	0	1.6	0	1.6	0	1.6	0	1.6
24	76.8	73.7	0	1.8	0	1.2	0	1.2	0	1.2	0	1.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	69.6	67.4	0	0.7			0	0.0			0	0.0			0	0.0			0	0.0		
2	67.6	65.0	0	0.4			0	0.0			0	0.0			0	0.0			0	0.0		
3	65.8	63.4	0	0.2			0	0.0			0	0.0			0	0.0			0	0.0		
4	64.3	62.2	0	0.1			0	0.0			0	0.0			0	0.0			0	0.0		
5	63.1	61.1	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
6	62.4	60.3	0	0.0			-1,384	0.0			-1,455	0.0			-1,455	0.0			-1,455	0.0		
7	62.2	60.2	0	0.0			-8,748	0.0			-8,748	0.0			-8,748	0.0			-8,748	0.0		
8	62.9	60.9	0	0.5			-6,315	0.0			-6,315	0.0			-6,315	0.0			-6,315	0.0		
9	64.7	61.8	0	1.2			-2,512	0.0			-2,512	0.0			-2,512	0.0			-2,512	0.0		
10	67.6	62.1	0	1.7			0	0.0			0	0.0			0	0.0			0	0.0		
11	71.1	63.1	0	2.1			0	0.0			0	0.0			0	0.0			0	0.0		
12	74.8	64.6	0	2.5			0	0.0			0	0.0			0	0.0			0	0.0		
13	78.3	66.7	0	3.0			0	0.0			0	0.0			0	0.0			0	0.0		
14	81.2	68.4	0	3.2			0	1.3			0	1.3			0	1.3			0	1.3		
15	83.0	70.0	0	3.3			0	2.0			0	2.0			0	2.0			0	2.0		
16	83.7	70.5	0	3.4			0	2.1			0	2.1			0	2.1			0	2.1		
17	83.4	70.5	0	3.1			0	2.1			0	2.1			0	2.1			0	2.1		
18	82.8	70.9	0	2.7			0	2.0			0	2.0			0	2.0			0	2.0		
19	81.6	72.7	0	2.3			0	1.7			0	1.7			0	1.7			0	1.7		
20	80.1	74.7	0	2.0			0	1.6			0	1.6			0	1.6			0	1.6		
21	78.3	74.1	0	1.6			0	1.3			0	1.3			0	1.3			0	1.3		
22	76.3	72.4	0	1.2			0	0.9			0	0.9			0	0.9			0	0.9		
23	74.1	70.7	0	0.9			0	0.4			0	0.4			0	0.4			0	0.4		
24	71.8	68.9	0	0.7			0	0.0			0	0.0			0	0.0			0	0.0		

October			----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	52.2	50.5	0	0.0			-18,317	0.0			-18,312	0.0			-18,312	0.0			-18,312	0.0		
2	50.1	48.6	0	0.0			-21,034	0.0			-21,040	0.0			-21,040	0.0			-21,040	0.0		
3	48.4	46.9	-11,904	0.0			-22,817	0.0			-22,817	0.0			-22,817	0.0			-22,817	0.0		
4	47.1	45.8	-17,538	0.0			-24,406	0.0			-24,406	0.0			-24,406	0.0			-24,406	0.0		
5	46.3	44.8	-18,441	0.0			-25,783	0.0			-25,783	0.0			-25,783	0.0			-25,783	0.0		
6	46.0	44.5	-18,674	0.0			-26,967	0.0			-26,967	0.0			-26,967	0.0			-26,967	0.0		
7	46.8	45.3	-17,701	0.0			-26,258	0.0			-26,258	0.0			-26,258	0.0			-26,258	0.0		
8	48.9	47.5	-12,906	0.0			-23,281	0.0			-23,281	0.0			-23,281	0.0			-23,281	0.0		
9	52.2	49.9	-6,662	0.0			-18,816	0.0			-18,816	0.0			-18,816	0.0			-18,816	0.0		
10	56.2	52.5	-314	0.0			-14,104	0.0			-14,104	0.0			-14,104	0.0			-14,104	0.0		
11	60.4	54.4	0	0.0			-8,877	0.0			-8,877	0.0			-8,877	0.0			-8,877	0.0		
12	64.4	56.0	0	0.0			-3,867	0.0			-3,867	0.0			-3,867	0.0			-3,867	0.0		
13	67.7	57.3	0	0.0			0	0.0			0	0.0			0	0.0			0	0.0		
14	69.8	58.2	0	0.8			0	0.0			0	0.0			0	0.0			0	0.0		
15	70.6	58.1	0	1.4			0	0.0			0	0.0			0	0.0			0	0.0		
16	70.3	57.5	0	1.4			0	0.0			0	0.0			0	0.0			0	0.0		
17	69.5	57.3	0	1.2			0	0.0			0	0.0			0	0.0			0	0.0		
18	68.2	57.7	0	0.7			0	0.0			0	0.0			0	0.0			0	0.0		
19	66.5	60.6	0	0.2			0	0.0			0	0.0			0	0.0			0	0.0		
20	64.4	60.8	0	0.0			-348	0.0			-348	0.0			-348	0.0			-348	0.0		
21	62.1	59.4	0	0.0			-8,349	0.0			-8,349	0.0			-8,349	0.0			-8,349	0.0		
22	59.6	57.3	0	0.0			-11,067	0.0			-11,067	0.0			-11,067	0.0			-11,067	0.0		
23	57.0	55.1	0	0.0			-13,589	0.0			-13,589	0.0			-13,589	0.0			-13,589	0.0		
24	54.5	52.7	-1,516	0.0			-15,979	0.0			-15,979	0.0			-15,979	0.0			-15,979	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-17,078	0.0	-19,633	0.0	-19,637	0.0	-19,637	0.0	-19,637	0.0
2	49.4	47.3	-18,994	0.0	-22,161	0.0	-22,161	0.0	-22,161	0.0	-22,161	0.0
3	47.2	45.3	-20,718	0.0	-24,882	0.0	-24,882	0.0	-24,882	0.0	-24,882	0.0
4	45.3	43.4	-22,011	0.0	-26,907	0.0	-26,907	0.0	-26,907	0.0	-26,907	0.0
5	43.9	42.2	-22,878	0.0	-28,299	0.0	-28,299	0.0	-28,299	0.0	-28,299	0.0
6	43.0	41.4	-23,000	0.0	-29,645	0.0	-29,645	0.0	-29,645	0.0	-29,645	0.0
7	42.7	41.2	-22,005	0.0	-30,405	0.0	-30,405	0.0	-30,405	0.0	-30,405	0.0
8	43.5	42.0	-18,873	0.0	-29,629	0.0	-29,629	0.0	-29,629	0.0	-29,629	0.0
9	45.9	44.0	-12,956	0.0	-26,359	0.0	-26,359	0.0	-26,359	0.0	-26,359	0.0
10	49.4	46.6	-6,546	0.0	-22,082	0.0	-22,082	0.0	-22,082	0.0	-22,082	0.0
11	53.8	48.6	0	0.0	-17,382	0.0	-17,382	0.0	-17,382	0.0	-17,382	0.0
12	58.4	50.6	0	0.0	-12,245	0.0	-12,245	0.0	-12,245	0.0	-12,245	0.0
13	62.8	52.6	0	0.0	-7,865	0.0	-7,865	0.0	-7,865	0.0	-7,865	0.0
14	66.3	54.5	0	0.0	-4,070	0.0	-4,070	0.0	-4,070	0.0	-4,070	0.0
15	68.7	55.7	0	0.3	-1,279	0.0	-1,279	0.0	-1,279	0.0	-1,279	0.0
16	69.5	56.1	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.7	-865	0.0	-865	0.0	-865	0.0	-865	0.0
18	68.3	57.0	0	0.3	-2,856	0.0	-2,856	0.0	-2,856	0.0	-2,856	0.0
19	66.9	59.4	0	0.0	-5,047	0.0	-5,047	0.0	-5,047	0.0	-5,047	0.0
20	65.0	59.4	0	0.0	-6,927	0.0	-6,927	0.0	-6,927	0.0	-6,927	0.0
21	62.8	58.2	0	0.0	-9,295	0.0	-9,295	0.0	-9,295	0.0	-9,295	0.0
22	60.2	56.1	0	0.0	-11,876	0.0	-11,876	0.0	-11,876	0.0	-11,876	0.0
23	57.5	54.0	-6,299	0.0	-14,277	0.0	-14,277	0.0	-14,277	0.0	-14,277	0.0
24	54.7	51.7	-15,294	0.0	-16,891	0.0	-16,891	0.0	-16,891	0.0	-16,891	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-23,134	0.0	-28,683	0.0	-28,683	0.0	-28,683	0.0	-28,683	0.0
2	43.2	41.1	-24,618	0.0	-30,556	0.0	-30,556	0.0	-30,556	0.0	-30,556	0.0
3	41.8	39.8	-25,915	0.0	-32,050	0.0	-32,050	0.0	-32,050	0.0	-32,050	0.0
4	40.7	38.7	-27,030	0.0	-33,254	0.0	-33,254	0.0	-33,254	0.0	-33,254	0.0
5	40.1	38.4	-27,884	0.0	-34,170	0.0	-34,170	0.0	-34,170	0.0	-34,170	0.0
6	39.9	38.4	-27,706	0.0	-34,498	0.0	-34,498	0.0	-34,498	0.0	-34,498	0.0
7	40.5	39.0	-26,945	0.0	-34,907	0.0	-34,907	0.0	-34,907	0.0	-34,907	0.0
8	42.2	40.7	-25,493	0.0	-33,814	0.0	-33,814	0.0	-33,814	0.0	-33,814	0.0
9	44.9	43.4	-20,778	0.0	-30,200	0.0	-30,200	0.0	-30,200	0.0	-30,200	0.0
10	48.2	45.8	-15,711	0.0	-26,296	0.0	-26,296	0.0	-26,296	0.0	-26,296	0.0
11	51.7	48.3	-10,193	0.0	-21,907	0.0	-21,907	0.0	-21,907	0.0	-21,907	0.0
12	55.0	50.7	-4,906	0.0	-17,742	0.0	-17,742	0.0	-17,742	0.0	-17,742	0.0
13	57.7	52.0	-990	0.0	-14,250	0.0	-14,250	0.0	-14,250	0.0	-14,250	0.0
14	59.5	52.6	0	0.0	-12,140	0.0	-12,140	0.0	-12,140	0.0	-12,140	0.0
15	60.1	52.7	0	0.0	-11,275	0.0	-11,275	0.0	-11,275	0.0	-11,275	0.0
16	59.9	52.6	0	0.0	-11,323	0.0	-11,323	0.0	-11,323	0.0	-11,323	0.0
17	59.2	52.1	0	0.0	-12,143	0.0	-12,143	0.0	-12,143	0.0	-12,143	0.0
18	58.2	51.8	0	0.0	-14,365	0.0	-14,365	0.0	-14,365	0.0	-14,365	0.0
19	56.8	52.2	-7,786	0.0	-16,215	0.0	-16,215	0.0	-16,215	0.0	-16,215	0.0
20	55.0	51.4	-12,079	0.0	-18,101	0.0	-18,101	0.0	-18,101	0.0	-18,101	0.0
21	53.1	50.1	-15,218	0.0	-20,115	0.0	-20,115	0.0	-20,115	0.0	-20,115	0.0
22	51.0	48.1	-17,858	0.0	-22,221	0.0	-22,221	0.0	-22,221	0.0	-22,221	0.0
23	48.9	46.2	-20,111	0.0	-24,503	0.0	-24,503	0.0	-24,503	0.0	-24,503	0.0
24	46.9	44.1	-21,826	0.0	-26,532	0.0	-26,532	0.0	-26,532	0.0	-26,532	0.0

01 Card - Job Information

Project: ENERGY STUDY OF COOLING PLANT
 Location: FORT GORDON, GEORGIA
 Client: U. S. ARMY CORPS OF ENGINEERS
 Program User: BON
 Comments: BUILDING 25414 (8 BLDGS)

-----CARD 08-- Climatic Information-----

Weather	Summer Clearness Code	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating	Ventilation	Airflow Input	Airflow Output	Room Circulation	Put Wall RA Load to Room
Load	Load	Method	Units	Units	Rate	
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	

-----CARD 20-- General Room Parameters-----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	SERVICE MODULE	2030		6	2.4		11.4			

-----CARD 21-- Thermostat Parameters -----

Room	Cooling Room	Room Design	Cooling T'stat	Cooling T'stat	Heating Room	Heating T'stat	Heating T'stat	Heating T'stat	T'stat Location	Mass / No. Hrs	Carpet On
Number	Design DB	RH	Driftpoint	Schedule	Design DB	Driftpoint	Schedule	Flag	Average Floor		
1		50		CLGCONST				HTGCONST		LIGHT30'	NO

-----CARD 22-- Roof Parameters -----

Room	Roof	Equal to	Roof	Roof	Roof	Const	Roof	Roof	Roof
Number	Number	Floor?	Length	Width	U-Value	Type	Direction	Tilt	Alpha
1	1	YES				182			

-----CARD 24-- Wall Parameters -----

Room	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Ground
Number	Number	Length	Height	U-Value	Type	Direction	Tilt	Alpha	Reflectance	Multiplier
1	1	46.7	11		181	0				
1	2	46.7	11		181	270				
1	3	46.7	11		181	180				
1	4	46.7	11		181	90				

-----CARD 25-- Wall/Glass Parameters -----

Room	Wall	Glass	Glass	Pct Glass	Glass	Shading	External	Internal	Percent	Visible	Inside
Number	Number	Length	Width	or No. of	U-Value	Coefficient	Shading	Shading	Solar to	Transmittance	Visible
				Windows			Type	Type	Ret. Air		Reflectance
1	1	8	8.5	1	1.03	.87	3				
1	2	8	11.5	1	1.03	.87	4				
1	4	8	11.5	1	1.03	.87	4				

-----CARD 26-- Schedules -----

Room	People	Lights	Ventilation	Infiltration	Reheat	Cooling	Heating	Auxiliary	Room	Daylighting
Number	FGHEAT	FGHEAT	YES	YES	Minimum	Fans	Fan	Fan	Exhaust	Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room	People	People	People	People	Lighting	Lighting	Lighting	Percent	Daylighting
Number	Value	Units	Sensible	Latent	Value	Units	Fixture	Lights to	Reference
							Type	Ret. Air	Point 1
1	35	PEOPLE	345	435	3550	WATTS	ASHRAE2		Point 2

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Energy Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	VENDING, FRIG	5005	BTUH	FGHEAT						
1	2	MICROWAVE	200	WATTS	FGHEAT						
1	3	T V	1.0	KW	FGHEAT						
1	4	COFFE POT	1120	BTUH	FGHEAT						

Room Number	Ventilation-----				Infiltration-----				--Reheat Minimum--	
	---Cooling---		---Heating---		---Cooling---		---Heating---		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

Room Number	Main				Auxiliary				Room Exhaust	
	Cooling		Heating		Cooling		Heating		Value	Units
1	1	CFM-SF	1	CFM-SF						

Shading Type	OVERHANG			VERTICAL FINS					Adjacent Building Flag
	Glass Height	Above Glass	Projection Out	Glass Width	Projection Left	Projection Out	Projection Right	Projection Out	
3	8.0	.5	2						
4	8.0	.5	6.7	11.5		6.7		6.7	NO

-----OPTIONAL VENTILATION SYSTEM-----							
System		Ventil					Fan
Set	System	Deck	Cooling	Heating	Cooling	Heating	Static
Number	Type	Location	SADBvh	SADBvh	Schedule	Schedule	Pressure
1	SZ						

[illegible]

-----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path
1											

-----CARD 48-- Cooling Capacity Overrides -----

System			Misc							
Set	People	Lights	Loads	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Number	Variance	Variance	Variance	Value	Units	Sizing	Location	Value	Units	
1			85							

Utility Description Reference Table

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE
FGHEAT SCHD FOR HEAT LOAD CALCS
HTGCONST SAMPLE HEATING TSTAT SCHEDULE
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT
Project: SCHO FOR HEAT LOAD CALCS
Location: AUGUSTA, GEORGIA
Client: CORP OF ENGINEERS
Program User: BON
Comments:

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST
Project: SAMPLE HEATING TSTAT SCHEDULE
Location: SAMPLE
Client:
Program User:
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

0 72
24

Schedule Name: YES
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	